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AGRICULTURAL MEMORANDUM NO 411

The effects of shelter on mesoclimate

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1. **Introduction**. The provision of shelter may affect the climate of a small area in a number of ways which are important in horticulture. The most obvious of these is in the reduction of general wind speed but the effects on the radiation and moisture balances also lead to changes in temperature, evaporation, humidity and soil moisture. Such modifications of the macroclimate may conveniently be designated mesoclimatic along with those due to other topographic features such as slope and aspect of the land. Some earlier writers have used the term microclimatic for these local modifications but this is probably best reserved for the zone close to the surface of the growing crop (or the ground, if the soil is bare) where the main energy exchange occurs.

   The present work gives the results of a comparison of climatological records at sheltered and unsheltered sites made over a 3-year period in Cornwall. They amplify some preliminary results already published (Hogg, 1965 and 1966) and are of particular relevance to early production in SW England.

2. **Sites**. The observations were made at Rosewarne Experimental Horticulture Station, Camborne. The station is in an exposed part of north Cornwall; the nearest part of the north coast is some 2 miles distant and Mount's Bay on the south coast is about 9 miles away. The standard agrometeorological station in OS 754 was used as the unsheltered reference site (site 6); this is on a small plateau at a height of 76 m. The sheltered sites (1 to 5) were in a rectangular strip running NNE-SSW, known as Section 2A of OS 753 (see fig.1). The centre of this strip (site 3) was some 140 m from the agrometeorological station. The land here sloped toward the SSW and the slope of about 5° in the lower part of the field was distinctly steeper than in the upper part. The dimensions of the strip were approximately 110 x 20 m and it was surrounded by hedges.

   On the east and west sides of the strip were continuous thick escallonia hedges, about 2 m high on the west and 1.5 m on the east. A Cornish hedge with a row of pines about 2.7 m high formed the northern boundary and a thick privet hedge about 1.8 m the southern limit to the sheltered strip. Within the sheltered area there was a narrow path in the north and an access road in the south, see fig.2. All of the hedges varied somewhat in height during the period as a result of growth and trimming. The whole of the sheltered strip was put down to a ley before observation commenced.

   The soil at all sites is known as the Rosewarne series. It belongs to the Brown Earth Group and is freely drained; the upper layers consist of a brown loam with quartz fragments and it has a high organic matter content.

3. **Instruments and observations**. At each site a mesoclimatic station was set up, see fig.2. Each station comprised:

FH1

Small thermometer screen with base about 0.5 m above ground, housing a Piché evaporimeter and standard maximum and minimum thermometers at a nominal height of 0.6 m. The screens were installed 2 h (h = hedge height) from the nearest hedge, except for the central site, 3.

Cup-counter anemometer 0.6 m above ground, 3 h from the nearest hedge, except for site 3. The instrument measures run of wind.

Bare soil plot 0.6 x 0.6 m with a minimum thermometer mounted 5 cm above the surface and the following soil thermometers: 5 cm, 10 cm and 20 cm mercury thermometers for spot readings and a Six's pattern maximum and minimum alcohol and mercury thermometer, depth 5 cm. The bare plot was 2 h from the nearest hedge, except for site 3.

The observations were made daily starting at 0900 GMT.

The bulk of the observations started on 1 December 1960 and ceased 31 December 1963. Readings from the Piché evaporimeter started on 28 February 1961 and 5 cm maximum and minimum soil temperatures ceased on 27 May 1963.

Temperatures were measured in degrees Fahrenheit and run of wind in miles; these were converted into metric units after processing.

4. Results. The basic results are contained in tables 1(a to j), 2(a to j) and 3(a to j).

In the tables, absolute values are given for site 6 and temperature means for the other sites are expressed as deviations from site 6 values. For evaporation the values for sites 1 to 5 are expressed as a percentage of the site 6 values ("relative evaporation"). Similar values have been computed for relative wind but in the tables they are expressed as "relative shelter", ie 100 minus relative wind.

In both the tables and the text any discussion on direction is limited to the quadrants S-SW, W-NW, N-NE and E-SE. These combinations of directions were selected because the orientation of the sheltered strip is such that each site, except site 3, tends to show a substantial shelter effect with winds from a particular quadrant, for example S-SW winds at site 1.

Values for the individual elements are discussed in the following paragraphs.

5. Shelter. The monthly means of relative shelter for sites 1-5 given in table 2a show that site 1 is the most sheltered with values of between 40 and 60% in most months, followed by site 5 with values mainly in the range 25-45%. In most months site 3 is the least sheltered site with values typically 10-25%, no doubt because of its position as far away as possible from the hedges. The sites by the long hedges (2, 4) are about equally sheltered over the year as a whole, although missing observations prevent close comparison.

The monthly values given in table 2a are plotted in fig.3 and it is evident that there is a good deal of variation between sites. On the assumption that this is due largely to the distribution of wind direction during the individual months, graphs of the frequency of wind directions (table 4) are also given in fig.3. These are drawn in relation to the site expected to be most affected for each quadrant, viz, S-SW, site 1: W-NW, site 2: N-NE, site 5: E-SE, site 4.

The curves for E-SE wind frequencies and relative shelter at site 4 fit very well and those for N-NE winds at site 5 reasonably well. The other sets of curves, relating to winds from the western quadrants are poor fits and the annual variation of relative shelter at sites 1 and 2 appears to depend on factors other than wind frequency. It is difficult to suggest what these may be as only one wind observation per day is made at the agrometeorological station. Probably the dimensions of the sheltered area are partly responsible as with 2 m hedges banding a strip not more than 20 m wide the distinction between sheltered and unsheltered sites is somewhat vague.

Part of the explanation may lie in the evidence of canalization shown in table 3a which gives relative shelter in relation to wind direction and strength. When S-SW winds blow, site 1 is well sheltered but all other sites have winds stronger than at the standard exposed site 6. The only exception to this is with strong winds in spring when some shelter was recorded at all sites, but these results depend on only one 3-day spell and must be treated with reserve. There is also evidence for canalization at times with E-SE winds, probably when the winds are more southerly than easterly. However this does not show in the annual values, unlike those for S-SW winds.

For each group of wind directions it is possible to estimate on general grounds the ranking of sites 1-5 when arranged in descending order of relative shelter. These are as follows:

Wind directions	Sites in descending order of expected relative shelter
S-SW	1, 2, 5, 4, 3
W-NW	2, 5, 1, 4, 3
N-NE	5, 4, 1, 2, 3
E-SE	4, 1, 5, 2, 3

Rankings derived from table 3a are very similar but not identical to those above. Where there are differences these are seldom greater than one rank.

There are marked differences in the values of relative shelter at the most sheltered site for each group of wind directions. Using the annual values only these are:

S-SW	site 1	47%
W-NW	sites 2, 5	57%
N-NE	site 5	81%
E-SE	site 4	65%

The highest value may be due to the more massive nature of the shelter at site 5, where there is a Cornish stone hedge as well as a row of pines. Also, the fact that the measurements are taken on a gentle downhill slope away from the shelter at site 5 may be a factor; at site 1 (S-SW winds) they are taken on a steeper uphill slope.

6. Evaporation. The monthly values for site 6 in table 2b show clearly that these do not approximate to true evaporation and the relative values are therefore used only to make a rough assessment for the sheltered sites over the same periods.

The central site 3 has the highest mean relative values in every month, mainly around 90%, a result consistent with its assessment as the least sheltered site. Site 5 has the lowest values in most months (60-70%) although site 1 is more sheltered. This may be due to an interaction between temperature and wind, site 1 being most protected during periods of warm southerly winds and site 5 with cooler northerly winds.

On the assumption that relative evaporation is greatest at the windy sites and least at the most sheltered, a comparison between the expected and actual site rankings (based on table 3b) for the individual wind directions show them to be very similar in all seasons. The windiest sites for S-SW winds (sites 3 and 4) recorded more evaporation than site 6. Also with E-SE directions relative evaporation at sites 2 and 3 tends to be greater than at the other sites, a confirmation of the low values for relative shelter at these sites. A further parallel with the wind measurements is shown by the relative evaporation at the most sheltered sites for individual wind direction. The annual values are:

S-SW	site 1	82%*
W-NW	sites 2, 5	59%
N-NE	site 5	44%
E-SE	site 4	55%

*Site 2 has a relative evaporation of 79% but site 1 is quoted for comparison with the wind results.

7. Air temperature (screen). The monthly means of daily maximum and minimum air temperature at 0.6 m in tables 2c and 2d show that the shelter effect is fairly small at most sites for much of the year.

Shelter increased maximum temperature generally but many of the values are too small to be of horticultural significance. At site 2 the increase amounts to 1°C or more for the period April to August and at site 5 for May to July. Rather surprisingly the increases at site 1 are considerably less than at 2 and 5 and are comparable with those for the exposed sites 3 and 4.

The minimum temperature is little affected by shelter. With very few exceptions the effect is to reduce the temperature, by a maximum of 0.6°C.

Table 3c shows that with S-SW winds maximum temperatures are slightly higher in the sheltered area but differences never reach 1°C and are largely less than 0.5°C. The cloudiness which often accompanies wind from these directions clearly has some influence here. The shelter effect is more marked with winds from other directions, particularly W-NW which leads to increases of more than 1°C at sites 2 and 5 in all seasons except winter. For N-NE winds there are substantial increases in maximum temperature during spring and summer, particularly for site 5 where the respective increases are 1.8 and 3.5°C (one spell of 3 days only), and to a less extent at site 2. With E-SE winds the main effect is at site 4 where the temperature is increased by 1.9°C in summer.

For minimum temperature the effect of shelter with all wind directions is to reduce this generally by less than 0.5°C, see table 3d. The only entries of 1°C or more are for strong S-SW winds in spring (-1.3° at site 1) and for light N-NE winds in autumn (-1.0°C at site 1 and -1.4°C at site 5). However all of these are subject to some doubt as they are based on single spells of 3 days.

In relation to air temperature generally in sheltered areas, probably the most important factor revealed by a consideration of the maximum and minimum values together is the marked tendency for a net rise of temperature over the 24 hours from the period April to September.

8. Minimum air temperature 5 cm above bare soil. These were recorded to provide estimates of air temperature close to the ground at night. The monthly means in table 2e confirm the expectation that the site 6 values are somewhat lower than screen minimum temperature, by around 1°C in summer and 2°C in winter, see fig.4. Almost without exception the values for the sheltered sites are slightly

lower than for those for site 6, generally by about 0.5°C or less. These values are very similar to those for screen minimum temperature.

Table 3e shows little evidence of any relation between wind direction and the deviations, which are of the same order as those for air minimum temperature in the screen. Some entries reach or exceed 1°C but the majority of these are based on short runs and no generalizations are possible.

9. Soil temperature, maximum and minimum. The monthly means for December 1960 to May 1963 are given in table 2f and g. Three of the 6 instruments were broken during the hard winter of 1963 and the February values were lost. The 2 year means for that month appear acceptable by comparison with the (complete) records from the other sites.

Fig.4 gives graphs of maximum and minimum air temperature at 0.6 m and soil temperature at 5 cm depth, both for site 6. From some time around mid-March the soil is warmer than the air by day and night until late September or early October when the air becomes warmer than the soil.

Maximum soil temperatures are liable to be affected by shading as well as shelter and there is therefore a good deal of variation in the deviations. During April to September the maximum temperatures for at least 3 of the 5 sheltered sites are 1°C or more warmer than at site 6 and during May-July some sites are 2-3°C warmer; the sites most affected are 1, 2 and 5 (table 2f). During December-February most sheltered sites are slightly warmer, but the effect is less than 1°C. The minimum temperatures at the sheltered sites also are slightly warmer, by less than 1°C in December-March and up to 1.0-1.5°C in June-August, when site 1 shows the greatest effect, see table 2g.

When S-SW winds are blowing there is very little shelter effect on maximum soil temperatures (table 3f), only site 1 shows increases of 1-2°C in spring and summer. For the other directions, temperatures are 1-3°C higher at most sheltered sites except in winter, though with N-NE winds there is no effect in autumn and a 1°C rise at sites 3 and 5 in winter.

For minimum temperatures there are small mainly positive deviations during all seasons at all sites, see table 3g. These reach 1°C only in spring (N-NE, site 5) and summer (S-SW, site 1; W-NW, site 1; N-NE, sites 1 and 5).

10. Soil temperature at 0900. Measurements were made at the depths 5, 10, 20 cm and the results are summarized in tables 1h-j, 2h-j and 3h-j. Tables 2h-j enable comparisons at the 3 depths to be made. At site 6 the maximum difference between the depths occurs in spring and early summer (April to July) when the 5 cm temperatures are 1°C or more warmer than the 20 cm (2°C in June); in winter they are about 1°C cooler.

During the summer half-year (April-September) the shelter effect at site 1 leads to higher 5 cm soil temperature, at least 1°C above site 6 and 1.9°C in June (table 2h). At site 2 the deviations are mainly around 1°C and at site 5 mainly above 0.5°C. During October-March only one deviation (March, site 1) exceeds 0.5°C. At the least sheltered sites 3 and 4 deviations throughout the year range from nil to +0.3°C, too small to be considered.

The results from both 10 and 20 cm depth are very similar (tables 2i and j). During May to August deviations at site 1 are mainly between 1.0 and 1.5°C with progressively lower values for sites 2 and 5. During September to April they are mainly 0.5°C or less and, as at 5 cm, no effect of shelter is evident in soil temperatures.

On the assumption that the effect of shelter is to increase the soil temperature there is a reasonable correspondence between the expected and actual effect but certain sites appear to be more favoured than would be expected, others less so. For example, site 1 is more favoured in that it shows maximum effect not only for S-SW winds but also (in some seasons) for all other directions (tables 3h-j). Similarly, site 4 is less favoured than expected and shows little effect even with mainly easterly winds (N-NE, E-SE); these general remarks are true for all depths but on the whole the positive deviations are higher for the shallower depths.

The higher temperatures at site 1 may well be due to the steeper slope towards the SSW than at the other stations. At site 4 the 0900 temperature may be affected by the shading of the hedge which cuts off some early morning direct sunshine.

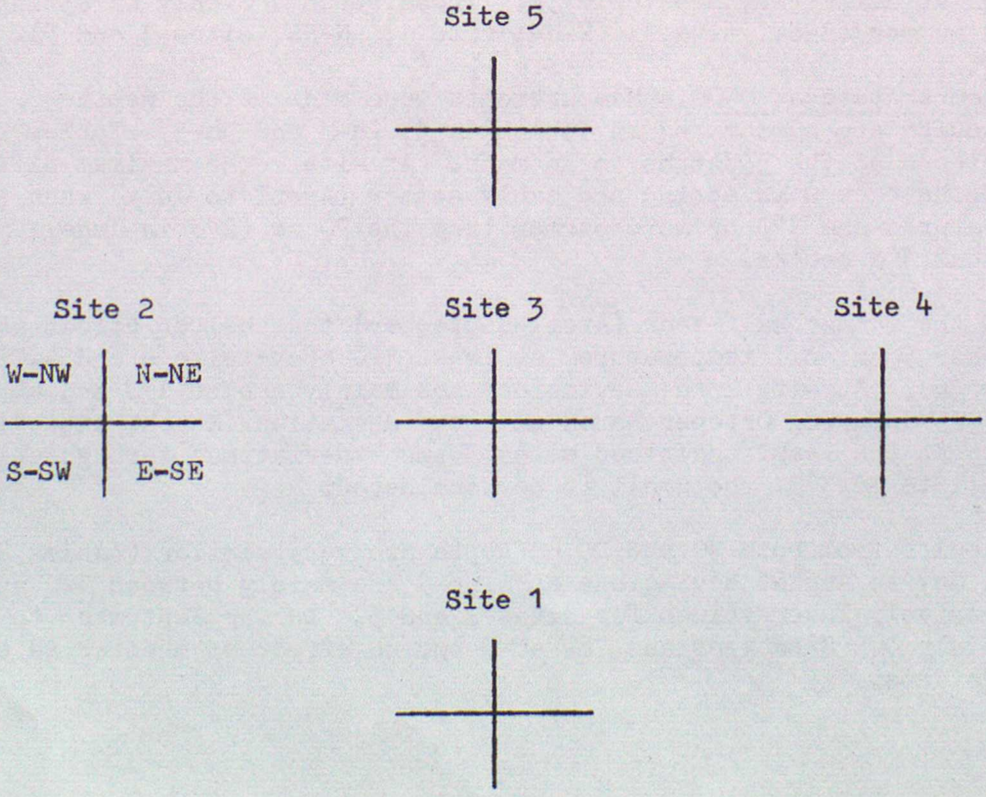
With S-SW winds the shelter effect at site 1 is particularly marked in summer when the deviations are 1.2-1.5°C, according to depth; the deviations are considerably greater than those for the other sites. In spring the deviations for site 1 also tend to be rather greater than for the others, but the differences more or less disappear later in the year.

With W-NW winds the deviations in spring at site 2 range from 0.7 to 1.2°C; in summer they increase to 1.1-1.6°C and are very similar at site 1. In autumn the effect is less than in spring and in winter it is of no significance.

There is a marked shelter effect at site 5 with N-NE winds in spring and summer, amounting to 0.9-1.5°C at all depths, but the effect at site 1 is somewhat greater, particularly in summer. Later in the year the effect is less, 0.4-1.0°C at site 5. There is little sign of the expected effect at site 4 apart from the autumn and winter values for 20 cm.

E-SE winds have most effect at site 1. In spring and summer the values for all depths lie between 0.7 and 1.3°C and tend to be greater at the shallower depths. They are lower in autumn and negligible in winter.

11. Summary tables. Tables 5a-e contain summaries of the seasonal values of relative shelter and evaporation and temperature deviations, all in relation to wind direction. The arrangement of the values is as follows:



The main grouping is in relation to the position of the stations and the subgroups indicate wind direction (see site 2 above). Within the subgroups, the values are arranged as shown below.

	Rel. shelter (3a)	
	Rel. evap. (3b)	
Screen max (3c)		Soil 0900 5 cm (3h)
Screen min (3d)	Soil max 5 cm (3f)	Soil 0900 10 cm (3i)
"Bare soil" min (3e)	Soil min 5 cm (3g)	Soil 0900 20 cm (3j)

The units are as in the tables from which the values are derived (table numbers shown in brackets) except that deviations are multiplied by ten to avoid the decimal point.

In addition to the individual values, shelter indices have been derived by using the values for relative shelter, relative evaporation, maximum air temperature (screen) and the 0900 GMT soil temperature at 10 cm depth.

The following scores were allocated:

Score	Rel. shelter	Rel. evap.	T_x screen	T_{0900} 10 cm depth
0	< 10	> 90	0-0.5	0-0.5
1	11-30	70-89	0.6-1.5	0.6-1.0
2	31-50	50-69	1.6-2.5	1.1-1.5
3	> 50	< 50	> 2.5	> 1.5

The totals of the index values are also given in tables 5a-e and these form a convenient basis for the following general conclusions. In judging these it must be remembered that the frequency of some winds is very small, see table 3a. For example only one spell of N-NE winds occurred in the summer.

12. Conclusions.

1. Judged overall the shelter effect is greatest in the summer and least in the winter. There is little difference between spring and autumn.

2. Although there are slight variations the greatest effects are shown at site 5 followed by sites 1, 2, 4 and the central site, 3, which is least affected.

3. The shelter effect in this situation is shown to be greatest with W-NW winds and least with S-SW. There is little to choose between the other 2 quadrants.

4. S-SW winds. Little shelter effect is seen with these winds except at site 1 in summer. Other evidence shows that the orientation of the hedges leads to increased speed except at site 1.

5. W-NW winds. The maximum shelter effect is felt at site 2 in each season, with somewhat less at sites 5 and 1. The effect is considerably less at sites 3 and 4.

6. N-NE winds. The shelter effect at site 5 is considerably greater than at the other sites, between which there is little difference except in summer when sites 1 & 2 also show a marked effect.

7. E-SE winds. Site 4 shows the maximum effect followed by 1 and 5 (about the same). Sites 2 and 3 show little effect.

13. Acknowledgements. This work could not have been carried out without the permission of the Director of Rosewarne EHS and the ready co-operation of his staff. In particular Mr J N Levitt produced an excellent series of daily observations. At Bristol, Mr A J Pearson was responsible for the bulk of the computation and Mr J W Davies gave invaluable help in the preparation of the final report.

14. References

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Any comments or suggestions on this paper should be sent to the author.

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Tables

In each of tables 1, 2 and 3 suffixes a-j refer to the various elements as follows: a, run of wind; b, Piché evaporimeter; c, max screen temp; d, min screen temp; e, min bare soil temp; f, max 5 cm soil temp; g, min 5 cm soil temp; h, 0900 5 cm soil temp; i, 0900 10 cm soil temp; j, 0900 20 cm soil temp.

Table 3 deals with the various elements in relation to wind direction and strength. The values were obtained by combining into periods the days with the same wind direction as recorded at 0900 at site 6 (unsheltered). Periods of less than 3 days were ignored. Also, wind directions are divided according to strength, the division being based on the average run of wind per day during the period, again at site 6. The categories used are as follows:

Category	Average daily run of wind
Light (L)	0-120 miles (0-193 km)
Moderate (M)	121-240 miles (194-386 km)
Strong (S)	over 240 miles (387 km)

Table 3a also contains details of the number of spells in each category and the total number of days, as an aid in assessing the reliability of the results. As the numbers in the strength categories are small, comment in the text is restricted generally to the direction totals. The number of spells and days are not given for the other elements (tables 3b-j) but they are generally similar to the values in table 3a, although not necessarily identical with them.

The tables refer to the period January 1961 to December 1963, except where otherwise indicated.

Table 1a - Mean daily run of wind at 0.6 m in km for site 6 (weather station) with values of relative shelter (percentage) for other sites

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	211	256	253	179	191	195	179	208	230	195	237	245	299
1	50	45	40	42	47	47	59	56	56	62	55	49	51
2	31	24	14	30	6	18	40	51	44	3	25	31	27
3	18	16	6	19	2	14	30	37	31	1	13	25	30
4	12	19	3	21	8	18	23	29	23	8	12	31	39
5	35	25	14	35	15	38	45	55	38	8	25	52	36
		1962											
Site 6		249	296	217	246	241	190	135	163	196	216	203	309
1		38	46	44	50	43	47	44	50	55	57	53	53
2		17	47	36	48	26	10	18	19	14	43	-*	-*
3		8	36	39	44	21	6	-2	3	7	38	26	38
4		0	36	48	41	20	11	8	5	21	51	39	46
5		19	59	57	52	43	28	27	18	25	53	58	55
		1963											
Site 6		283	277	261	195	221	182	164	214	166	177	203	164
1		54	44	31	39	42	52	53	54	56	62	52	47
2		37	45	-4	12	27	17	15	31	36	2	-17	8
3		51	30	-5	7	13	10	12	19	21	-2	-24	19
4		76	65	7	17	14	18	25	20	26	15	-18	54
5		68	49	-*	34	43	-*	25	35	44	15	- 5	39

Table 1b - Mean daily evaporation from Piché evaporimeters in 0.6 m screens Values for site 6 (weather station) in ml, with relative (percentage) values for other sites

	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6			2.08	1.60	4.00	3.52	3.59	3.29	2.49	2.42	3.04	2.48
1			75	74	72	69	68	69	67	67	65	68
2			75	83	80	67	62	66	83	65	68	66
3			91	98	88	84	77	80	97	90	82	76
4			80	90	81	78	77	80	85	87	72	64
5			62	84	62	64	59	68	80	70	53	62
	1962											
Site 6	2.16	3.01	2.32	2.93	2.82	3.65	2.49	1.94	2.61	2.40	2.22	2.66
1	79	66	75	74	76	85	83	77	73	71	65	61
2	70	56	76	64	69	88	86	71	80	68	70	55
3	93	74	86	72	85	107	103	95	96	81	88	78
4	90	69	64	68	80	90	90	89	79	66	69	67
5	76	47	61	59	58	78	76	75	71	60	54	52
	1963											
Site 6	-*	2.02**	1.85	1.67	2.72	2.55	2.26	2.25	2.24	1.39	1.99	1.64
1		73	87	87	85	89	85	78	76	72	76	73
2		77	82	81	71	84	77	65	62	77	94	97
3		79	106	101	94	95	91	89	82	94	119	85
4		57	89	85	86	66	78	89	79	84	108	60
5		70	78	72	65	74	74	67	60	67	85	65

*Record missing
**Record incomplete

Table 1c - Mean daily maximum air temperature in 0.6 m screens
Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	8.4	8.7	10.5	11.8	13.7	15.6	17.9	18.7	19.0	18.5	14.3	10.6	9.3
1	+0.2	+0.3	+0.2	+0.6	+0.7	+0.6	+0.8	+0.9	+0.8	+0.6	+0.2	+0.2	+0.1
2	+0.2	+0.3	+0.3	+1.1	+1.2	+1.1	+1.9	+2.2	+1.7	+0.8	+0.4	+0.4	+0.2
3	+0.3	+0.3	+0.2	+0.3	+0.4	+0.3	+0.4	+0.7	+0.6	+0.3	+0.3	+0.3	+0.1
4	+0.2	+0.3	+0.1	+0.3	+0.4	+0.6	+0.2	+0.3	+0.3	+0.3	+0.1	+0.2	+0.2
5	+0.5	+0.3	+0.2	+0.9	+0.8	+1.7	+1.7	+2.2	+1.1	+0.7	+0.3	+0.5	+0.2
		1962											
Site 6		9.3	8.1	7.3	11.5	13.1	17.2	18.2	17.8	16.9	14.9	10.2	8.3
1		+0.1	+0.2	+0.5	+0.4	+0.5	+0.7	+0.4	+0.3	+0.4	+0.4	+0.1	+0.2
2		+0.2	+0.4	+0.7	+0.8	+1.2	+1.4	+1.0	+0.8	+0.7	+0.6	+0.1	+0.1
3		+0.2	+0.3	+0.6	+0.6	+0.6	+0.6	+0.2	+0.1	+0.3	+0.6	+0.1	+0.3
4		+0.1	+0.3	+0.6	+0.8	+0.4	+0.8	+0.1	0.0	+0.5	+0.7	+0.2	+0.2
5		+0.2	+0.6	+1.0	+0.7	+1.3	+1.2	+1.1	+0.3	+0.6	+0.8	+0.2	+0.2
		1963											
Site 6		2.8	5.2	10.1	11.6	14.0	17.8	18.1	17.4	16.7	14.4	12.4	7.7
1		+0.2	+0.3	+0.3	+0.4	+0.3	+0.3	+0.5	+0.4	+0.4	+0.3	+0.1	+0.1
2		+0.1	+0.1	+0.7	+1.1	+1.3	+0.7	+0.9	+1.1	+0.8	+0.2	+0.1	+0.2
3		+0.4	+0.7	+0.5	+0.6	+0.3	+0.1	+0.4	+0.2	+0.4	+0.2	+0.1	+0.3
4		+0.5	+0.5	+0.2	+0.3	+0.1	0.0	+0.5	-0.1	+0.4	0.0	0.0	+0.2
5		+0.5	+0.4	+0.5	+0.9	+0.7	+0.6	+0.7	+0.6	+0.8	+0.5	0.0	+0.3

Table 1d - Mean daily minimum air temperature in 0.6 m screens
Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	3.3	4.2	6.9	5.8	8.3	7.7	10.8	12.1	12.8	12.1	9.2	6.4	4.8
1	-0.4	-0.4	-0.2	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.4	-0.5	-0.5	-0.4
2	-0.2	-0.2	-0.1	-0.3	-0.1	-0.1	-0.2	-0.1	0.0	-0.1	-0.2	-0.2	-0.2
3	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	+0.1	-0.1	-0.2	-0.2	-0.2
4	-0.3	-0.4	-0.2	-0.4	-0.2	-0.4	-0.3	-0.3	-0.1	-0.2	-0.3	-0.4	-0.5
5	-0.4	-0.2	-0.1	0.0	-0.2	-0.5	-0.4	-0.6	-0.2	-0.2	-0.2	-0.4	-0.3
		1962											
Site 6		4.7	4.1	1.6	5.2	7.4	9.7	11.4	11.6	10.5	8.9	5.1	3.8
1		-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.2	-0.4	-0.5	-0.7	-0.7	-0.7
2		-0.3	-0.4	-0.3	-0.3	-0.3	-0.2	+0.1	-0.2	-0.2	-0.3	-0.3	-0.3
3		-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	+0.2	-0.1	-0.1	-0.1	-0.1	-0.1
4		-0.5	-0.4	-0.6	-0.5	-0.5	-0.5	-0.2	-0.3	-0.3	-0.6	-0.6	-0.5
5		-0.5	-0.5	-0.5	-0.5	-0.7	-0.6	-0.2	-0.4	-0.5	-0.6	-0.4	-0.4
		1963											
Site 6		-2.0	0.9	5.2	6.1	7.8	10.8	10.9	12.0	10.6	9.8	7.6	2.7
1		-0.6	-0.6	-0.6	-0.6	-0.5	-0.3	-0.2	-0.3	-0.4	-0.3	-0.4	-0.6
2		-0.1	-0.2	-0.2	-0.3	-0.3	0.0	+0.2	+0.1	-0.1	-0.1	-0.2	-0.2
3		0.0	-0.2	-0.2	-0.2	-0.1	+0.1	+0.3	+0.2	0.0	+0.1	-0.1	-0.1
4		-0.6	-0.4	-0.6	-0.6	-0.3	-0.1	0.0	-0.2	-0.4	-0.2	-0.3	-0.6
5		-0.6	-0.5	-0.5	-0.4	-0.4	-0.3	-0.1	-0.2	-0.2	-0.2	-0.2	-0.5

Table 1e - Mean daily minimum air temperature 5 cm above bare soil

Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	1.5	2.3	5.8	4.1	7.4	5.8	9.7	10.7	11.9	10.9	7.9	4.8	2.9
1	-0.3	-0.1	+0.1	-0.4	-0.1	0.0	-0.1	-0.4	-0.5	-0.6	-0.4	-0.3	-0.4
2	-0.4	0.0	0.0	-0.3	0.0	-0.1	-0.4	-0.6	-0.7	-0.6	-0.7	-0.3	-0.2
3	-0.1	+0.3	+0.1	-0.4	-0.2	-0.2	-0.4	-0.8	-0.7	-0.6	-0.4	-0.2	-0.2
4	-0.8	-0.3	-0.1	-0.6	-0.2	-0.3	-0.5	-0.7	-0.6	-0.5	-0.6	-0.5	-0.4
5	-0.1	+0.1	+0.1	-0.2	-0.1	-0.3	-0.5	-0.7	-0.4	-0.5	-0.4	-0.3	-0.4
		1962											
Site 6		3.0	2.6	-0.2	3.8	6.1	8.1	10.3	10.6	9.1	6.9	3.5	2.1
1		-0.6	-0.2	-0.4	-0.3	-0.4	-0.4	-0.7	-0.7	-0.7	-0.9	-0.9	-0.6
2		-0.6	-0.4	-0.4	-0.6	-0.7	-0.4	-0.7	-0.5	-0.5	-0.3	-0.2	-0.5
3		-0.2	-0.3	-0.4	-0.3	-0.4	-0.5	-0.6	-0.3	-0.4	-0.3	-0.3	-0.2
4		-0.7	-0.6	-0.9	-0.8	-0.6	-0.3	-0.4	-0.4	-0.5	-0.4	-0.4	-0.6
5		-0.4	-0.6	-0.6	-0.4	-0.5	-0.3	-0.4	-0.1	-0.3	-0.5	-0.1	-0.5
		1963											
Site 6		-3.7	-0.7	3.6	4.9	6.6	10.2	10.5	11.4	9.6	8.6	5.7	0.2
1		-0.2	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.5	-0.4	-0.4	-0.2	0.0
2		+0.1	-0.2	-0.5	-0.8	-1.1	-0.4	-0.3	-0.4	-0.7	-0.3	-0.2	+0.3
3		+0.2	+0.2	-0.1	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.1	+0.1	+0.3
4		-0.6	-0.6	-0.6	-0.9	-1.6	-0.6	-0.6	-0.3	-0.4	-0.3	-0.3	-0.7
5		-0.1	+0.1	-0.2	-0.4	-0.3	-0.4	-0.5	-0.3	-0.4	-0.1	+0.1	+0.2

Table 1f - Mean daily maximum soil temperature at 5 cm depth

Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	6.4	6.9	9.4	12.1	15.2	19.1	22.4	22.7	20.6	19.1	13.2	8.7	7.2
1	-0.6	-0.4	+0.4	+1.2	+2.0	+3.2	+3.6	+1.8	+1.7	+1.3	+0.5	0.0	-0.3
2	+0.3	+0.3	+0.6	+1.5	+1.1	+1.7	+2.3	+2.7	+1.7	+0.7	+0.2	+0.1	-0.3
3	+0.2	+0.1	+0.2	+0.8	+0.6	+2.1	+1.6	+1.8	+1.6	+0.4	+0.4	+0.4	+0.3
4	+0.1	+0.1	+0.2	+0.8	+0.6	+2.6	+2.1	+1.4	+1.1	+0.7	+0.4	+0.7	+0.1
5	+0.1	-0.1	+0.1	+1.0	+0.7	+2.1	+2.3	+2.7	+1.6	+0.6	+0.6	+0.8	+0.3
		1962											
Site 6		6.9	7.0	6.7	12.5	15.9	22.1	21.0	18.6	16.7	13.4	8.1	5.6
1		-0.5	+0.3	+0.7	+1.4	+1.6	+1.9	+1.1	+0.8	+1.8	+1.1	+0.1	-0.1
2		-0.3	+0.4	+0.9	+0.9	+1.7	-0.1	+0.5	+1.1	+2.0	+2.1	+1.1	+1.0
3		-*	+0.6	+1.1	+0.7	+0.8	+0.1	-0.1	+0.1	+0.9	+1.0	-*	+0.7
4		-0.1	+0.6	+1.4	+1.2	+1.4	+1.4	+0.7	0.0	+1.6	+1.4	+0.6	+0.4
5		0.0	+0.9	+1.4	+0.8	+1.8	+1.2	+1.5	+1.1	+1.1	+1.0	+0.4	+0.6
		1963											
Site 6		0.1	2.9	8.7	12.4	14.9							
1		+0.2	+1.2	+0.6	+1.0	+1.6							
2		+1.0	-*	+1.2	+1.6	+2.5							
3		+0.8	-*	+0.8	0.0	-*							
4		+0.7	+0.9	+0.5	+0.9	+1.0							
5		+0.7	-*	+1.3	+1.8	+2.0							

*Record missing

Table 1g - Mean daily minimum soil temperature at 5 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	3.7	3.9	6.8	6.7	9.5	10.4	13.6	14.7	14.2	13.2	9.7	6.0	4.4
1	-0.5	-0.4	+0.1	+0.4	+1.0	+0.7	+1.5	+1.6	+1.1	+0.7	+0.2	+0.1	-0.2
2	-0.2	-0.3	-0.1	+0.3	+0.3	+0.2	+0.4	+0.9	+0.8	+0.1	-0.1	0.0	-0.4
3	-0.2	-0.2	-0.1	+0.1	0.0	-0.3	-0.1	-0.1	+0.1	+0.4	+0.6	+0.4	+0.3
4	0.0	-0.1	+0.1	+0.2	+0.3	+0.1	+0.1	+0.3	+0.3	+0.2	+0.5	+0.6	+0.3
5	-0.3	-0.3	-0.1	+0.2	+0.2	+0.1	+0.3	+0.9	+0.8	+0.6	+0.7	+0.8	+0.5
		1962											
Site 6		4.1	3.9	2.2	6.2	9.0	12.5	13.9	13.1	11.9	9.7	5.3	3.4
1		-0.1	+0.2	+0.5	+0.6	+0.7	+1.1	+1.2	+1.2	+0.4	+0.2	+0.1	-0.2
2		-0.4	-0.3	-0.2	+0.3	+0.4	+0.3	+0.6	+0.8	+0.3	+0.4	+1.2	+0.9
3		-*	+0.6	+0.6	+0.7	+0.7	+0.6	+0.9	+1.2	+0.5	+0.7	-*	+0.8
4		+0.3	+0.5	+0.7	+0.7	+0.7	+0.6	+0.5	+0.7	-0.1	+0.1	+0.5	+0.1
5		+0.3	+0.8	+0.6	+0.8	+0.8	+0.6	+0.9	+0.9	+0.6	+0.7	+1.1	+0.6
		1963											
Site 6		-0.5	0.6	4.6	6.9	9.0							
1		-0.4	-0.2	+0.3	+0.3	+0.4							
2		+0.5	-*	+0.5	+0.6	+0.8							
3		+0.5	-*	+0.4	-0.2	-*							
4		+0.1	+0.1	+0.2	+0.3	-0.1							
5		+0.2	-*	+0.7	+0.7	+0.6							

Table 1h - Mean 0900 GMT soil temperature at 5 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	4.7	5.1	7.8	8.2	11.6	13.7	17.4	18.2	16.7	15.3	11.2	7.4	5.8
1	-0.4	-0.3	+0.1	+1.1	+1.8	+2.9	+2.7	+2.1	+1.7	+1.9	+0.7	+0.1	-0.2
2	-0.1	-0.1	0.0	+0.5	+0.4	+1.6	+1.6	+1.7	+1.3	+0.8	+0.6	+0.3	+0.1
3	-0.1	-0.1	0.0	+0.5	+0.4	+1.6	+0.4	+0.8	+0.6	+0.6	+0.4	+0.3	+0.1
4	-0.1	-0.1	+0.1	+0.3	+0.4	+1.3	+0.1	+0.3	+0.1	+0.1	+0.3	+0.2	0.0
5	-0.1	-0.1	0.0	+0.7	+0.5	+1.6	+0.4	+1.3	+0.8	+0.8	+0.6	+0.6	+0.2
		1962											
Site 6		5.6	5.5	3.9	8.9	12.3	16.9	17.4	15.8	13.7	11.0	6.8	4.8
1		-0.2	-0.1	+0.6	+1.3	+1.2	+1.8	+1.4	+1.1	+1.3	+0.7	+0.1	-0.2
2		-0.1	0.0	+0.4	+0.9	+1.2	+0.4	+1.0	+0.8	+0.9	+0.6	+0.5	+0.1
3		+0.1	0.0	+0.3	+0.4	+0.5	-0.2	-0.1	-0.1	+0.3	+0.4	+0.6	+0.2
4		0.0	0.0	+0.3	+0.3	+0.5	-0.2	+0.1	-0.3	+0.1	+0.2	+0.4	0.0
5		+0.1	+0.3	+0.6	+0.7	+1.2	+0.3	+1.0	+0.3	+0.7	+0.6	+0.8	+0.4
		1963											
Site 6		0.1	1.4	6.7	10.0	13.2	17.0	16.9	16.0	13.9	12.1	9.2	4.3
1		-0.3	+0.2	+0.3	+0.2	+0.4	+1.1	+0.6	+0.7	+0.4	+0.2	-0.2	-0.6
2		0.0	+0.4	+0.3	+0.3	+0.7	+0.7	+0.7	+0.9	+0.4	+0.2	+0.1	-0.2
3		+0.1	+0.3	+0.1	-0.2	-0.4	-0.3	-0.3	-0.1	+0.2	+0.1	+0.1	0.0
4		0.0	+0.2	-0.3	-0.2	-0.5	-0.3	-0.3	-0.1	-0.1	+0.1	+0.1	-0.2
5		+0.3	+0.5	+0.3	+0.3	0.0	-0.4	+0.2	+0.4	+0.6	+0.2	+0.2	+0.1

*Record missing

Table 1i - Mean 0900 GMT soil temperature at 10 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	5.2	5.3	7.8	8.1	10.9	12.7	15.7	16.8	15.9	14.9	11.3	7.7	6.3
1	-0.6	-0.4	+0.1	+0.6	+1.3	+1.8	+2.3	+1.8	+1.4	+1.1	+0.2	-0.2	-0.3
2	-0.2	-0.2	+0.1	+0.4	+0.5	+0.9	+1.2	+1.6	+1.3	+0.6	+0.5	+0.3	-0.1
3	-0.1	-0.1	+0.1	+0.2	+0.2	+0.5	+0.2	+0.3	+0.3	+0.2	0.0	+0.3	+0.1
4	-0.1	-0.2	0.0	+0.1	+0.2	+0.4	+0.1	+0.2	+0.2	+0.1	+0.3	+0.2	0.0
5	-0.2	-0.2	-0.1	+0.3	+0.3	+0.8	+0.4	+1.2	+0.8	+0.6	+0.6	+0.7	+0.3
		1962											
Site 6		5.8	5.7	3.9	8.1	11.2	15.2	16.4	15.3	13.6	11.2	7.1	5.1
1		-0.2	-0.1	+0.3	+0.1	+1.2	+1.5	+1.1	+0.8	+0.7	+0.3	+0.1	-0.1
2		0.0	+0.1	+0.3	+0.9	+1.1	+0.5	+0.7	+0.7	+0.5	+0.4	+0.6	-0.2
3		+0.2	+0.2	+0.3	+0.4	+0.4	0.0	0.0	+0.1	+0.2	+0.4	+0.6	+0.4
4		+0.1	+0.2	+0.5	+0.4	+0.4	+0.1	0.0	0.0	+0.1	+0.2	+0.5	+0.2
5		-0.2	+0.4	+0.6	+0.7	+0.9	+0.3	+0.6	+0.4	+0.5	+0.5	+1.9	+0.5
		1963											
Site 6		0.8	1.7	6.3	9.1	11.8	15.7	15.9	15.6	13.7	12.1	9.4	4.8
1		-0.3	-*	+0.1	+0.2	+0.4	+0.8	+0.5	+0.4	+0.1	0.0	-0.3	-0.7
2		-0.1	-*	+0.2	+0.2	+0.6	+0.6	+0.4	+0.3	-0.1	+0.1	-0.1	-0.3
3		+0.2	-*	+0.4	0.0	-0.1	+0.1	-0.1	-0.1	0.0	+0.2	+0.1	+0.1
4		+0.2	+0.3	-0.1	-0.2	-0.4	-0.2	-0.3	0.0	-0.1	+0.1	+0.1	0.0
5		+0.3	-*	+0.1	+0.2	+0.2	+0.1	+0.2	+0.2	+0.3	+0.2	+0.1	+0.2

Table 1j - Mean 0900 GMT soil temperature at 20 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Dec 1960	Jan 1961	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	5.9	5.8	8.1	8.6	11.0	12.8	15.4	16.7	16.1	15.4	11.9	8.3	6.9
1	-0.4	-0.3	+0.1	+0.4	+1.0	+1.2	+2.1	+2.0	+1.3	+0.9	+0.2	-0.1	-0.1
2	+0.2	+0.1	+0.1	+0.4	+0.5	+0.6	+0.8	+1.4	+1.2	+0.6	+0.6	+0.6	+0.4
3	0.0	-0.1	-0.1	+0.1	+0.1	-0.1	-0.1	+0.2	+0.2	+0.1	+0.4	+0.4	+0.3
4	+0.1	0.0	+0.1	+0.1	+0.2	+0.1	-0.1	+0.2	+0.2	+0.2	+0.4	+0.5	+0.3
5	-0.1	-0.2	-0.1	+0.1	+0.2	+0.3	+0.3	+1.2	+0.8	+0.4	+0.6	+0.7	+0.4
		1962											
Site 6		6.1	6.3	4.5	8.2	11.2	14.8	16.3	15.3	14.1	11.9	7.8	5.8
1		-0.1	+0.2	+0.3	+0.8	+0.9	+1.3	+1.1	+0.8	+0.7	+0.3	+0.1	-*
2		+0.3	+0.5	+0.6	+0.8	+1.0	+0.4	+0.6	+0.8	+0.6	+0.6	+0.7	+0.4
3		+0.3	+0.3	+0.5	+0.3	+0.2	-0.1	-0.1	+0.2	+0.2	+0.5	+0.6	+0.3
4		+0.3	+0.5	+0.7	+0.5	+0.5	+0.2	+0.1	+0.2	+0.3	+0.4	+0.6	+0.4
5		+0.2	+0.6	+0.7	+0.6	+0.7	+0.3	+0.7	+0.4	+0.5	+0.6	+0.7	+0.6
		1963											
Site 6		1.7	2.5	6.3	8.9	11.4	15.2	15.6	15.7	13.9	12.3	9.8	5.4
1		-0.3	-0.2	+0.4	+0.5	+0.8	+1.3	+0.8	+0.6	+0.6	+0.3	0.0	-0.4
2		+0.3	-*	+0.3	+0.3	+0.8	+0.7	+0.4	+0.5	+0.4	+0.4	+0.2	0.0
3		+0.3	-0.1	+0.1	0.0	-0.1	+0.1	0.0	-0.1	+0.3	+0.3	+0.3	+0.2
4		+0.5	+0.1	+0.2	+0.2	-0.1	+0.3	+0.1	+0.3	+0.3	+0.3	+0.4	+0.2
5		+0.5	+0.2	+0.3	+0.4	+0.4	+0.5	+0.3	+0.5	+0.6	+0.4	+0.3	+0.2

*Record missing

Table 2a - Monthly means of daily run of wind in km for site 6 (weather station) with values of relative shelter (percentage) for other sites

	Unit	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	km	262	275	219	211	219	183	169	203	185	209	217	257
1	%	46	43	39	45	44	53	51	53	58	58	51	50
2	%	26	35	21	22	24	22	28	31	18	23	7†	17†
3	%	25	24	18	18	16	15	16	18	10	16	9	29
4	%	32	35	25	22	17	17	21	16	18	26	17	46
5	%	37	41	46†	34	41	37†	36	30	26	31	35	43

†One year missing, see table 1a

Table 2b - Monthly means of Piché evaporimeter readings in 0.6 m screens Values for site 6 (weather station) in ml with relative (percentage) values for other sites

	Unit	Jan†	Feb†	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	ml	2.2	3.0	2.1	2.1	3.2	3.2	2.8	2.5	2.5	2.1	2.4	2.3
1	%	79	66	79	78	78	81	79	75	72	70	69	67
2	%	70	56	78	76	73	80	75	67	75	70	77	73
3	%	93	74	94	90	89	95	90	88	92	88	96	80
4	%	90	69	78	81	82	78	82	86	81	79	83	64
5	%	76	47	67	72	62	72	70	70	70	66	64	60

†Readings for January and February refer to 1962 only

Observations started in March 1961 and the evaporimeters were frozen for most of January and some of February 1963

Table 2c - Monthly means of daily maximum temperature in 0.6 m screens Values for site 6 (weather station) and deviations for other sites, °C

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	6.9	7.9	9.7	12.3	14.2	17.6	18.3	18.1	17.4	14.5	11.1	8.4
1	+0.2	+0.2	+0.5	+0.5	+0.5	+0.6	+0.6	+0.5	+0.5	+0.3	+0.1	+0.1
2	+0.2	+0.3	+0.8	+1.0	+1.2	+1.3	+1.4	+1.2	+0.8	+0.4	+0.2	+0.2
3	+0.3	+0.4	+0.5	+0.5	+0.4	+0.4	+0.4	+0.3	+0.3	+0.4	+0.2	+0.2
4	+0.3	+0.3	+0.4	+0.5	+0.4	+0.3	+0.3	+0.1	+0.4	+0.3	+0.1	+0.2
5	+0.3	+0.4	+0.8	+0.8	+1.2	+1.2	+1.3	+0.7	+0.7	+0.5	+0.2	+0.2

Table 2d - Monthly means of daily minimum temperature in 0.6 m screens
Values for site 6 (weather station) and deviations for other sites, °C

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	2.3	4.0	4.2	6.5	7.6	10.4	11.5	12.1	11.1	9.3	6.4	3.8
1	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-0.2	-0.3	-0.4	-0.5	-0.5	-0.6
2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	+0.1	0.0	-0.1	-0.2	-0.2	-0.3
3	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	+0.1	+0.1	-0.1	-0.1	-0.1	-0.1
4	-0.5	-0.3	-0.5	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3	-0.4	-0.4	-0.5
5	-0.4	-0.4	-0.3	-0.4	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4

Table 2e - Monthly means of daily minimum air temperature 5 cm above bare soil
Values for site 6 (weather station) and deviations for other sites, °C

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	0.5	2.6	2.5	5.4	6.2	9.3	10.5	11.3	9.9	7.8	4.7	1.7
1	-0.3	-0.1	-0.3	-0.2	-0.2	-0.3	-0.5	-0.6	-0.6	-0.6	-0.5	-0.3
2	-0.2	-0.2	-0.4	-0.5	-0.6	-0.4	-0.5	-0.5	-0.6	-0.4	-0.2	-0.1
3	+0.1	0	-0.3	-0.3	-0.3	-0.4	-0.6	-0.4	-0.4	-0.3	-0.1	0
4	-0.5	-0.4	-0.7	-0.6	-0.8	-0.5	-0.6	-0.4	-0.5	-0.4	-0.4	-0.6
5	-0.1	-0.1	-0.3	-0.3	-0.4	-0.4	-0.5	-0.3	-0.4	-0.3	-0.1	-0.2

Table 2f - Monthly means of daily maximum soil temperature at 5 cm depth
Values for site 6 (weather station) and deviations for other sites, °C
December 1960-May 1963

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	4.6	6.4	9.2	13.4	16.6	22.3	21.9	19.6	17.9	13.3	8.4	6.4
1	-0.2	+0.6	+0.8	+1.5	+2.1	+2.7	+1.5	+1.3	+1.5	+0.8	+0.1	-0.3
2	+0.3	+0.5[†]	+1.2	+1.2	+2.0	+1.1	+1.6	+1.4	+1.3	+1.1	+0.6	+0.3
3	+0.5[†]	+0.4[†]	+0.9	+0.4	+1.5[†]	+1.1	+0.9	+0.9	+0.7	+0.7	+0.4[†]	+0.4
4	+0.2	+0.6	+0.9	+0.9	+1.7	+1.7	+1.1	+0.5	+1.1	+0.9	+0.7	+0.2
5	+0.2	+0.5[†]	+1.2	+1.1	+2.0	+1.7	+2.1	+1.3	+0.9	+0.8	+0.6	+0.3

[†] One year missing, see table 1f

Table 2g - Monthly means of daily minimum soil temperature at 5 cm depth
Values for site 6 (weather station) and deviations for other sites, °C
December 1960-May 1963

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	2.5	3.8	4.5	7.5	9.5	13.1	14.3	13.7	12.5	9.7	5.7	3.8
1	-0.3	0	+0.4	+0.6	+0.6	+1.3	+1.4	+1.1	+0.5	+0.2	+0.1	-0.3
2	-0.1	-0.2†	+0.2	+0.4	+0.5	+0.3	+0.7	+0.8	+0.2	+0.1	+0.6	+0.1
3	+0.1†	+0.3†	+0.4	+0.2	+0.2†	+0.3	+0.4	+0.7	+0.5	+0.7	+0.4†	+0.3
4	+0.1	+0.2	+0.4	+0.4	+0.2	+0.3	+0.4	+0.5	+0.1	+0.3	+0.5	+0.1
5	+0.1	+0.3†	+0.5	+0.6	+0.5	+0.5	+0.9	+0.9	+0.6	+0.7	+0.9	+0.3

†One year missing, see table 1g

Table 2h - Monthly means of 0900 GMT soil temperature at 5 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	3.6	4.9	6.3	10.6	13.1	17.1	17.5	16.2	14.3	11.4	7.8	5.0
1	-0.3	+0.1	+0.7	+1.1	+1.5	+1.9	+1.4	+1.2	+1.2	+0.5	0.0	-0.3
2	-0.1	+0.1	+0.4	+0.5	+1.2	+0.9	+1.1	+1.0	+0.7	+0.5	+0.3	0.0
3	0	+0.1	+0.3	+0.2	+0.6	0	+0.1	+0.1	+0.4	+0.3	+0.3	+0.1
4	0	+0.1	+0.1	+0.2	+0.4	-0.1	0	-0.1	0	+0.2	+0.2	-0.1
5	+0.1	+0.3	+0.5	+0.5	+0.9	+0.1	+0.8	+0.5	+0.7	+0.5	+0.5	+0.2

Table 2i - Monthly means of 0900 GMT soil temperatures at 10 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	4.0	5.1	6.1	9.4	11.9	15.5	16.4	15.6	14.1	11.5	8.1	5.4
1	-0.3	0.0†	+0.3	+0.5	+1.1	+1.5	+1.1	+0.9	+0.6	+0.2	-0.1	-0.4
2	-0.1	+0.1†	+0.3	+0.5	+0.9	+0.8	+0.9	+0.8	+0.3	+0.3	+0.3	-0.2
3	+0.1	+0.1†	+0.3	+0.2	+0.3	+0.1	+0.1	+0.1	+0.1	+0.2	+0.3	+0.2
4	0.0	+0.2	+0.2	+0.1	+0.1	0.0	0.0	+0.1	0.0	+0.2	+0.3	+0.1
5	0.0	+0.1†	+0.3	+0.4	+0.6	+0.3	+0.7	+0.5	+0.5	+0.4	+0.9	+0.3

†One year missing, see table 1i

Table 2j - Monthly means of 0900 GMT soil temperatures at 20 cm depth
Values for site 6 (weather station) and deviations for other sites, °C

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site 6	4.5	5.6	6.5	9.4	11.8	15.1	16.2	15.7	14.5	12.0	8.6	6.0
1	-0.2	0.0	+0.4	+0.8	+1.0	+1.6	+1.3	+0.9	+0.7	+0.3	0.0	-0.3†
2	+0.2	+0.2†	+0.4	+0.5	+0.8	+0.6	+0.8	+0.8	+0.5	+0.5	+0.5	+0.3
3	+0.2	0.0	+0.2	+0.1	0.0	0.0	0.0	+0.1	+0.2	+0.4	+0.4	+0.3
4	+0.3	+0.2	+0.3	+0.3	+0.2	+0.1	+0.1	+0.2	+0.3	+0.4	+0.5	+0.3
5	+0.2	+0.2	+0.4	+0.4	+0.5	+0.4	+0.7	+0.6	+0.5	+0.5	+0.6	+0.4

†One year missing, see table 1j

Table 3a - Relative shelter in relation to wind direction and strength

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	29	36	48	35	50	50	-	50	38	37	-	38	-	41	-	41
2	-31	-24	48	-18	45	57	-	54	24	26	-	25	-	25	-	25
3	-35	-26	39	-22	30	33	-	33	34	21	-	29	-	33	-	33
4	-49	-22	22	-26	31	26	-	27	37	30	-	34	-	60	-	60
5	-34	- 1	39	- 9	46	49	-	48	85	85	-	85	-	39	-	39
Spells/days	3/15	5/20	1/3	9/38	1/3	3/11	-	4/14	3/11	2/7	-	5/18	-	7/29	-	7/29

SEASON: SUMMER

	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	58	54	-	57	57	51	-	54	46	-	-	46	49	43	-	45
2	-34	-13	-	-30	51	62	-	57	32	-	-	32	-13	39	-	22
3	-36	-23	-	-33	36	44	-	41	22	-	-	22	-26	47	-	23
4	-37	-33	-	-36	34	33	-	33	21	-	-	21	9	79	-	56
5	-22	-22	-	-22	52	61	-	57	77	-	-	77	-14	53	-	30
Spells/days	8/27	2/6	-	10/33	5/20	6/18	-	11/38	1/3	-	-	1/3	1/3	2/12	-	3/15

SEASON: AUTUMN

	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	59	52	-	55	-	55	-	55	57	35	-	50	59	51	-	53
2	-25	-24	-	-24	-	59	-	59	29	17	-	23	52	39	-	41
3	-27	-33	-	-31	-	40	-	40	41	17	-	33	55	42	-	45
4	-28	-31	-	-30	-	35	-	35	71	36	-	60	90	69	-	74
5	-16	-21	-	-19	-	66	-	66	85	79	-	83	60	50	-	52
Spells/days	4/13	6/26	-	10/39	-	3/10	-	3/10	2/8	1/6	-	3/14	1/3	4/15	-	5/18

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	47	40	-	42	-	56	45	51	35	41	55	41	53	47	55	50
2	-20	5	-	- 2	-	54	65	59	5	23	38	19	-26	27	44	25
3	-23	- 5	-	-10	-	39	46	43	20	27	38	27	7	31	52	30
4	-16	-18	-	-17	-	76	34	55	51	55	74	57	56	67	77	67
5	-11	+ 3	-	- 1	-	80	51	65	78	79	74	78	13	39	53	36
Spells/days	3/9	8/32	-	11/41	-	1/3	1/3	2/6	2/8	2/8	1/3	5/19	2/10	6/22	2/9	10/41
YEAR																
Site 1	52	44	48	47	56	52	45	53	43	38	55	42	53	45	55	47
2	-29	-12	48	-18	50	60	65	57	21	23	38	23	4	30	44	28
3	-32	-20	39	-24	35	40	46	39	31	23	38	29	11	37	52	33
4	-34	-24	22	-27	34	35	34	35	47	38	74	46	53	66	77	65
5	-21	- 6	39	-11	51	61	51	57	82	82	74	81	18	43	53	40
Spells/days	18/64	21/84	1/3	40/151	6/23	13/42	1/3	20/68	8/30	5/21	1/3	14/54	4/16	19/78	2/9	25/103

Table 3b - Relative evaporation in relation to wind direction and strength

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	102	87	74	91	73	78	-	77	71	70	-	70	-	73	-	73
2	105	98	49	95	51	57	-	55	74	73	-	74	-	67	-	67
3	136	128	67	124	70	83	-	80	84	84	-	84	-	78	-	78
4	119	112	78	111	76	82	-	81	73	75	-	74	-	57	-	57
5	104	97	64	96	55	63	-	61	40	46	-	42	-	68	-	68

SEASON: SUMMER

Site 1	86	83	-	86	74	69	-	71	69	-	-	69	87	87	-	87
2	100	79	-	96	63	60	-	62	71	-	-	71	120	83	-	95
3	128	117	-	126	84	74	-	79	84	-	-	84	123	79	-	94
4	113	106	-	111	88	78	-	82	79	-	-	79	89	61	-	71
5	102	85	-	99	65	58	-	61	48	-	-	48	99	74	-	82

SEASON: AUTUMN

Site 1	67	75	-	71	-	61	-	61	71	69	-	70	74	74	-	74
2	84	89	-	87	-	52	-	52	81	82	-	82	77	81	-	81
3	109	124	-	118	-	76	-	76	82	84	-	83	73	77	-	76
4	113	118	-	116	-	80	-	80	50	63	-	54	47	55	-	53
5	106	84	-	93	-	47	-	47	50	40	-	47	64	69	-	68

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	94	79	-	81	No observation				No observation				73	69	67	70
2	121	72	-	80									115	81	67	87
3	132	103	-	107									100	71	63	77
4	126	99	-	103									59	48	39	49
5	109	81	-	85									83	63	51	65

YEAR

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	85	80	74	82	74	69	-	71	72	70	-	71	77	75	67	74
2	98	85	49	79	61	57	-	59	76	76	-	76	107	75	67	80
3	125	118	67	120	82	77	-	79	83	84	-	84	99	77	63	80
4	115	110	78	111	86	79	-	82	66	71	-	68	64	55	39	55
5	104	87	64	94	64	56	-	59	45	44	-	44	83	68	51	69

Table 3c - Maximum air temperature in 0.6 m screen in relation to wind direction and strength, deviation in °C from standard site

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.4	+0.3	+0.2	+0.3	+0.4	+1.3	-	+1.1	+0.5	+0.5	-	+0.5	-	+0.5	-	+0.5
2	+0.3	+0.4	+0.9	+0.5	+1.2	+2.2	-	+1.9	+0.7	+0.8	-	+0.8	-	+0.3	-	+0.3
3	+0.2	+0.2	+0.6	+0.3	+0.7	+0.8	-	+0.8	+0.6	+0.3	-	+0.4	-	+0.4	-	+0.4
4	0.0	+0.1	+0.2	+0.1	0.0	+0.2	-	+0.1	+0.6	+0.3	-	+0.5	-	+0.8	-	+0.8
5	+0.1	+0.3	+0.4	+0.2	+0.9	+1.3	-	+1.2	+1.6	+2.3	-	+1.8	-	+0.4	-	+0.4

SEASON: SUMMER

Site 1	+0.4	+0.2	-	+0.3	+0.8	+0.8	-	+0.8	+0.9	-	-	+0.9	+0.4	+0.9	-	+0.8
2	+0.2	+0.6	-	+0.3	+2.2	+2.3	-	+2.2	+1.9	-	-	+1.9	-0.3	+0.5	-	+0.2
3	-0.2	+0.1	-	-0.2	+0.2	+0.9	-	+0.6	+0.6	-	-	+0.6	-0.1	+0.8	-	+0.5
4	-0.3	-0.2	-	-0.2	+0.2	+0.3	-	+0.2	+0.2	-	-	+0.2	+0.9	+2.4	-	+1.9
5	+0.2	0.0	-	+0.1	+1.6	+1.8	-	+1.7	+3.5	-	-	+3.5	-0.1	+0.9	-	+0.6

SEASON: AUTUMN

Site 1	+0.3	+0.2	-	+0.2	-	+0.5	-	+0.5	+0.1	+0.1	-	+0.1	+0.6	+0.4	-	+0.4
2	+0.2	+0.3	-	+0.3	-	+1.4	-	+1.4	+0.1	+0.1	-	+0.1	+0.2	-0.1	-	0.0
3	+0.1	+0.1	-	+0.1	-	+0.7	-	+0.7	+0.2	+0.2	-	+0.2	+0.7	+0.2	-	+0.3
4	-0.1	-0.1	-	-0.1	-	+0.3	-	+0.3	+0.1	+0.1	-	+0.1	+0.8	+0.9	-	+0.9
5	+0.1	+0.1	-	+0.1	-	+1.1	-	+1.1	+0.1	+0.4	-	+0.2	+0.3	+0.3	-	+0.3

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.4	+0.1	-	+0.2	-	+0.2	0.0	+0.1	+0.2	+0.3	+0.1	+0.2	+0.3	+0.3	-0.1	+0.2
2	+0.5	+0.1	-	+0.2	-	+0.3	-0.3	0.0	+0.4	+0.1	+0.2	+0.3	+0.3	+0.2	+0.1	+0.2
3	+0.4	+0.1	-	+0.2	-	+0.2	-0.1	+0.1	+0.6	+0.4	+0.4	+0.4	+0.5	+0.5	+0.2	+0.4
4	+0.3	+0.1	-	+0.1	-	+0.1	0.0	+0.1	+0.6	+0.5	+0.3	+0.5	+0.4	+0.4	+0.1	+0.3
5	+0.3	+0.1	-	+0.1	-	+0.3	-0.1	+0.1	+0.9	+0.8	+0.3	+0.7	+0.4	+0.4	+0.2	+0.3

YEAR

	S-SW				W-NW				N-NE				E-SE			
Site 1	+0.4	+0.2	+0.2	+0.3	+0.7	+1.1	0.0	+0.7	+0.3	+0.3	+0.1	+0.3	+0.4	+0.4	-0.1	+0.4
2	+0.3	+0.3	+0.9	+0.3	+2.0	+1.9	-0.3	+1.8	+0.6	+0.4	+0.2	+0.5	+0.1	+0.2	+0.1	+0.2
3	0.0	+0.1	+0.6	+0.1	+0.3	+0.8	-0.1	+0.6	+0.5	+0.3	+0.4	+0.4	+0.4	+0.4	+0.2	+0.4
4	-0.1	0.0	+0.2	0.0	+0.1	+0.3	0.0	+0.2	+0.4	+0.4	+0.3	+0.4	+0.7	+0.8	+0.1	+0.8
5	+0.2	+0.1	+0.4	+0.1	+1.5	+1.4	-0.1	+1.3	+1.3	+1.3	+0.3	+1.2	+0.3	+0.4	+0.2	+0.4

Table 3d - Minimum air temperature in 0.6 m screen in relation to wind direction and strength, deviation in °C from standard site

SEASON: SPRING																
Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.6	-0.3	-1.3	-0.6	-0.4	-0.5	-	-0.5	-0.7	-0.7	-	-0.7	-	-0.4	-	-0.4
2	-0.3	-0.1	-0.6	-0.1	-0.2	-0.3	-	-0.3	-0.3	-0.3	-	-0.3	-	-0.1	-	-0.1
3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-	-0.1	-0.3	-0.3	-	-0.3	-	-0.1	-	-0.1
4	-0.6	-0.4	-0.3	-0.4	-0.4	-0.3	-	-0.4	-0.7	-0.8	-	-0.7	-	-0.4	-	-0.4
5	-0.5	-0.3	-0.3	-0.4	-0.3	-0.4	-	-0.4	-0.9	-1.1	-	-1.0	-	-0.3	-	-0.3
SEASON: SUMMER																
Site 1	-0.4	-0.4	-	-0.4	-0.5	-0.2	-	-0.3	-1.0	-	-	-1.0	-0.4	-0.6	-	-0.5
2	0.0	-0.1	-	-0.1	-0.1	-0.1	-	-0.1	-0.4	-	-	-0.4	+0.1	+0.1	-	+0.1
3	+0.1	+0.1	-	+0.1	-0.1	0.0	-	0.0	-0.6	-	-	-0.6	+0.1	+0.1	-	+0.1
4	-0.2	-0.2	-	-0.2	-0.3	-0.2	-	-0.3	-0.9	-	-	-0.9	-0.4	-0.7	-	-0.6
5	-0.2	-0.2	-	-0.2	-0.4	-0.3	-	-0.3	-1.4	-	-	-1.4	-0.2	-0.6	-	-0.5
SEASON: AUTUMN																
Site 1	-0.5	-0.4	-	-0.4	-	-0.4	-	-0.4	-0.5	-0.5	-	-0.5	-0.6	-0.4	-	-0.5
2	-0.2	-0.2	-	-0.2	-	-0.3	-	-0.3	-0.2	-0.5	-	-0.3	-0.2	-0.1	-	-0.1
3	-0.2	-0.1	-	-0.1	-	-0.1	-	-0.1	-0.1	-0.2	-	-0.1	-0.1	-0.1	-	-0.1
4	-0.3	-0.2	-	-0.2	-	-0.3	-	-0.3	-0.5	-0.4	-	-0.4	-0.5	-0.5	-	-0.5
5	-0.4	-0.3	-	-0.3	-	-0.3	-	-0.3	-0.5	-0.6	-	-0.5	-0.5	-0.4	-	-0.4

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				S-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.2	-0.6	-	-0.5	-	-0.3	-0.2	-0.3	-0.5	-0.3	-0.4	-0.4	-1.0	-0.4	-0.3	-0.5
2	+0.1	-0.3	-	-0.2	-	-0.2	-0.1	-0.2	-0.2	-0.1	0.0	-0.1	-0.1	-0.1	+0.1	-0.1
3	0.0	-0.3	-	-0.2	-	-0.1	-0.1	-0.1	-0.1	+0.1	+0.1	0.0	-0.1	-0.1	+0.1	-0.1
4	-0.2	-0.4	-	-0.4	-	-0.2	-0.1	-0.2	-0.7	-0.3	-0.3	-0.4	-0.8	-0.3	-0.2	-0.4
5	0.0	-0.4	-	-0.3	-	-0.2	0.0	-0.1	-0.8	-0.3	-0.3	-0.5	-0.4	-0.3	-0.1	-0.3

YEAR

Site 1	-0.4	-0.4	-1.3	-0.4	-0.5	-0.3	-0.2	-0.4	-0.6	-0.5	-0.4	-0.6	-0.7	-0.4	-0.3	-0.5
2	-0.1	-0.2	-0.6	-0.2	-0.1	-0.2	-0.1	-0.2	-0.4	-0.2	0.0	-0.3	-0.1	-0.1	+0.1	-0.1
3	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	+0.1	-0.2	0.0	-0.1	+0.1	-0.1
4	-0.3	-0.3	-0.4	-0.3	-0.3	-0.3	-0.1	-0.3	-0.7	-0.7	-0.3	-0.7	-0.6	-0.4	-0.2	-0.4
5	-0.3	-0.3	-0.4	-0.3	-0.4	-0.3	0.0	-0.3	-0.9	-0.6	-0.3	-0.7	-0.4	-0.4	-0.1	-0.3

Table 3e - Minimum air temperature 5 cm above bare soil in relation to wind direction and strength, deviation in ^{o}C from standard site

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.3	0.0	-0.3	-0.1	-0.2	-0.2	-	-0.2	-0.3	-0.4	-	-0.3	-	0.0	-	0.0
2	-0.9	-0.3	-1.0	-0.6	-0.9	-1.0	-	-0.9	-0.3	-0.4	-	-0.4	-	-0.1	-	-0.1
3	-0.4	-0.1	-0.4	-0.3	-0.3	-0.4	-	-0.4	-0.1	-0.2	-	-0.2	-	-0.1	-	-0.1
4	-1.0	-0.4	-0.9	-0.7	-0.7	-0.9	-	-0.8	-0.9	-0.8	-	-0.8	-	-0.3	-	-0.3
5	-0.5	-0.1	-0.4	-0.3	-0.3	-0.5	-	-0.4	-0.9	-0.6	-	-0.8	-	0.0	-	0.0

SEASON: SUMMER

Site 1	-0.2	+0.2	-	-0.1	-0.3	-0.3	-	-0.3	-1.3	-	-	-1.3	-0.6	-0.6	-	-0.6
2	-0.2	-0.3	-	-0.2	-0.6	-0.6	-	-0.6	-1.7	-	-	-1.7	-1.2	-0.2	-	-0.6
3	-0.3	-0.1	-	-0.2	-0.3	-0.4	-	-0.4	-1.8	-	-	-1.8	-0.7	-0.2	-	-0.4
4	-0.2	-0.2	-	-0.2	-0.6	-0.4	-	-0.5	-1.3	-	-	-1.3	-0.5	-0.3	-	-0.3
5	-0.1	-0.1	-	-0.1	-0.4	-0.3	-	-0.3	-1.6	-	-	-1.6	-0.3	-0.2	-	-0.2

SEASON: AUTUMN

Site 1	-1.1	-0.4	-	-0.7	-	-0.1	-	-0.1	-0.4	-0.2	-	-0.3	-0.6	-0.3	-	-0.3
2	-0.8	-0.4	-	-0.6	-	-0.5	-	-0.5	-0.1	-0.1	-	-0.1	+0.2	-0.1	-	-0.1
3	-0.8	-0.4	-	-0.6	-	-0.1	-	-0.1	-0.1	-0.2	-	-0.1	+0.3	-0.1	-	0.0
4	-0.7	-0.4	-	-0.6	-	-0.2	-	-0.2	-0.4	-0.5	-	-0.4	-0.1	-0.6	-	-0.6
5	-0.6	-0.2	-	-0.3	-	-0.4	-	-0.4	-0.2	-0.6	-	-0.3	-0.2	-0.4	-	-0.4

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.5	-0.3	-	-0.4	-	-0.2	-0.1	-0.1	-0.9	+0.1	+0.1	-0.3	-1.1	-0.1	+0.1	-0.2
2	-0.3	-0.3	-	-0.3	-	-0.8	-0.2	-0.5	-0.4	+0.1	-0.1	-0.2	+0.3	+0.2	+0.7	+0.3
3	-0.1	-0.1	-	-0.1	-	-0.1	+0.3	+0.1	-0.3	+0.2	+0.2	0.0	-0.3	+0.4	+0.2	+0.2
4	-0.6	-0.4	-	-0.4	-	-0.6	+0.1	-0.3	-1.2	-0.5	-0.2	-0.7	-1.2	-0.4	-0.6	-0.6
5	-0.1	-0.2	-	-0.2	-	-0.1	+0.2	+0.1	-0.8	-0.2	+0.1	-0.4	-0.2	+0.3	-0.2	+0.1

YEAR

Site 1	-0.5	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.2	-0.6	-0.2	+0.1	-0.4	-0.8	-0.2	+0.1	-0.2
2	-0.4	-0.3	-1.0	-0.4	-0.6	-0.7	-0.2	-0.6	-0.4	-0.2	-0.1	-0.3	-0.1	0.0	+0.7	+0.1
3	-0.4	-0.2	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.1	+0.2	-0.2	-0.2	+0.1	+0.2	+0.1
4	-0.6	-0.4	-0.9	-0.4	-0.6	-0.5	+0.1	-0.5	-0.9	-0.9	-0.2	-0.8	-0.7	-0.4	-0.6	-0.5
5	-0.3	-0.2	-0.4	-0.2	-0.4	-0.3	+0.2	-0.3	-0.8	-0.4	+0.1	-0.6	-0.2	0.0	-0.2	-0.1

Table 3f - Maximum soil temperature at 5 cm depth in relation to wind direction and strength, deviation in °C from standard site

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+1.0	+1.1	+1.1	+1.1	+0.9	+1.4	-	+1.3	+1.2	+2.6	-	+1.7	-	+1.3	-	+1.3
2	0.0	+0.6	+1.6	+0.5	+2.7	+3.4	-	+3.2	+1.1	+2.1	-	+1.4	-	+0.6	-	+0.6
3	+0.1	+0.3	+0.6	+0.3	+1.6	+0.9	-	+1.2	+1.2	+2.5	-	+1.7	-	+1.1	-	+1.1
4	-0.1	+0.1	+0.4	+0.1	+0.9	+1.4	-	+1.3	+1.6	+2.6	-	+2.1	-	+2.2	-	+2.2
5	+0.3	+0.5	+0.7	+0.4	+1.7	+2.6	-	+2.4	+2.6	+3.3	-	+2.8	-	+1.0	-	+1.0

SEASON: SUMMER

Site 1	+1.8	-	-	+1.8	+3.7	+2.1	-	+2.4	+0.6	-	-	+0.6	+2.1	+1.3	-	+1.7
2	-0.3	-	-	-0.3	+2.9	+2.6	-	+2.7	+1.7	-	-	+1.7	-0.6	-0.5	-	-0.5
3	-0.5	-	-	-0.5	+1.9	+1.5	-	+1.6	+1.7	-	-	+1.7	+0.1	+0.5	-	+0.3
4	-0.3	-	-	-0.3	+2.3	+1.4	-	+1.6	+1.6	-	-	+1.6	+1.2	+3.7	-	+2.5
5	0.0	-	-	0.0	+2.6	+2.6	-	+2.6	+3.1	-	-	+3.1	+0.8	+1.6	-	+1.2

SEASON: AUTUMN

Site 1	+0.1	+1.2	-	+0.7	-	+1.4	-	+1.4	+0.1	0.0	-	+0.1	+0.7	+1.1	-	+1.1
2	+0.6	+0.5	-	+0.5	-	+2.8	-	+2.8	+1.2	-0.6	-	+0.6	+1.5	+1.1	-	+1.1
3	+0.5	+0.2	-	+0.3	-	+1.4	-	+1.4	+0.9	+0.2	-	+0.7	+0.7	+0.8	-	+0.8
4	+0.2	+0.2	-	+0.2	-	+1.7	-	+1.7	+0.6	+0.6	-	+0.6	+1.2	+2.1	-	+1.9
5	+0.3	+0.2	-	+0.2	-	+2.1	-	+2.1	+0.8	+0.9	-	+0.8	+0.5	+0.9	-	+0.8

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.1	-0.4	-	-0.3	-	-0.4	+0.2	-0.1	-0.2	+0.4	-0.3	+0.1	-0.2	+0.6	-0.1	+0.3
2	+0.5	-0.3	-	-0.1	-	+0.3	+0.8	+0.6	+0.5	+0.8	+1.2	+0.8	+1.1	+0.3	+0.2	+0.4
3	-0.2	-0.1	-	-0.1	-	+0.1	+0.3	+0.2	-	+1.7	+0.9	+1.3	+0.8	+0.3	+0.4	+0.4
4	-0.3	-0.3	-	-0.3	-	+0.1	+0.2	+0.2	+0.5	+1.2	+0.7	+0.9	+0.7	+0.8	+0.7	+0.8
5	-0.3	-0.2	-	-0.2	-	+0.1	+0.2	+0.2	+1.0	+2.8	+1.3	+1.7	+0.7	+0.2	+0.5	+0.4

YEAR

Site 1	+1.1	+0.4	+1.1	+0.7	+2.8	+1.6	+0.2	+1.7	+0.6	+1.2	-0.3	+0.8	+0.9	+1.1	-0.1	+0.9
2	0.0	+0.2	+1.6	+0.2	+2.8	+2.7	+0.8	+2.6	+1.1	+1.1	+1.2	+1.1	+0.7	+0.6	+0.2	+0.6
3	-0.2	+0.2	+0.6	0.0	+1.8	+1.3	+0.3	+1.3	+1.2	+1.7	+0.9	+1.4	+0.5	+0.8	+0.4	+0.7
4	-0.2	-0.1	+0.4	-0.1	+1.8	+1.3	+0.2	+1.3	+1.2	+1.6	+0.7	+1.3	+1.1	+1.8	+0.7	+1.6
5	+0.1	+0.1	+0.7	+0.1	+2.3	+2.3	+0.2	+2.2	+1.9	+2.6	+1.3	+2.1	+0.7	+0.8	+0.5	+0.8

Table 3g - Minimum soil temperature at 5 cm depth in relation to wind direction and strength, deviation in °C from standard site

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.3	+0.6	+0.4	+0.4	+0.4	+0.4	-	+0.4	+0.6	+0.5	-	+0.6	-	+0.5	-	+0.5
2	+0.3	+0.4	+0.2	+0.3	+0.6	+0.8	-	+0.8	+0.4	+0.3	-	+0.3	-	+0.2	-	+0.2
3	+0.2	+0.3	+0.6	+0.3	+0.6	+0.7	-	+0.6	+0.9	+0.1	-	+0.6	-	+0.3	-	+0.3
4	+0.1	+0.2	+0.4	+0.2	+0.8	+0.1	-	+0.3	+0.9	-0.1	-	+0.6	-	+0.5	-	+0.5
5	+0.4	+0.5	+0.6	+0.4	+0.9	+0.8	-	+0.8	+1.3	+0.7	-	+1.1	-	+0.5	-	+0.5

SEASON: SUMMER

Site 1	+1.3	-	-	+1.3	+1.7	+1.3	-	+1.4	+1.4	-	-	+1.4	+1.2	+0.7	-	+0.9
2	+0.3	-	-	+0.3	+0.5	+0.9	-	+0.8	+0.9	-	-	+0.9	+0.6	+0.3	-	+0.4
3	+0.5	-	-	+0.5	-0.1	+0.2	-	+0.1	-0.1	-	-	-0.1	+0.6	+0.9	-	+0.7
4	+0.3	-	-	+0.3	+0.1	+0.3	-	+0.3	+0.5	-	-	+0.5	+0.3	+1.2	-	+0.8
5	+0.5	-	-	+0.5	+0.3	+0.9	-	+0.7	+1.2	-	-	+1.2	+1.2	+0.7	-	+0.9

SEASON: AUTUMN

Site 1	+0.3	+0.4	-	+0.4	-	+0.3	-	+0.3	+0.2	+0.1	-	+0.1	+0.5	+0.4	-	+0.4
2	+0.5	0.0	-	+0.2	-	+0.4	-	+0.4	+1.3	-0.1	-	+0.8	+0.3	+0.3	-	+0.3
3	+0.9	+0.6	-	+0.7	-	+0.6	-	+0.6	+1.3	+0.4	-	+0.9	+0.9	+0.6	-	+0.7
4	+0.7	+0.3	-	+0.4	-	+0.2	-	+0.2	+0.6	+0.7	-	+0.6	+0.4	+0.2	-	+0.2
5	+1.1	+0.5	-	+0.7	-	+0.7	-	+0.7	+0.9	+0.8	-	+0.9	+0.6	+0.7	-	+0.7

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.1	-0.1	-	-0.1	-	-0.3	-0.2	-0.3	0.0	+0.3	-0.4	0.0	-0.4	-0.3	-0.4	-0.3
2	-0.2	-0.3	-	-0.3	-	-0.3	-0.4	-0.3	-0.4	-0.2	+1.0	+0.1	+1.2	-0.3	-0.1	0.0
3	-0.2	+0.2	-	+0.1	-	+0.1	-0.2	-0.1	+0.6	+0.8	+0.9	+0.8	+0.9	0.0	+0.4	+0.3
4	-0.1	+0.2	-	+0.2	-	+0.3	0.0	+0.2	+0.3	+0.7	+0.3	+0.5	+0.2	0.0	+0.2	+0.1
5	-0.3	+0.2	-	+0.2	-	-0.2	-0.3	-0.2	+0.5	+1.3	+1.1	+0.9	+0.9	+0.1	+0.4	+0.3

YEAR

Site 1	+0.7	+0.2	+0.4	+0.4	+1.3	+0.8	-0.2	+0.8	+0.5	+0.3	-0.4	+0.3	+0.4	+0.3	-0.4	+0.2
2	+0.3	-0.1	+0.2	+0.1	+0.6	+0.7	-0.4	+0.6	+0.6	+0.1	+1.0	+0.4	+0.7	+0.1	-0.1	+0.2
3	+0.4	+0.3	+0.6	+0.4	+0.1	+0.3	-0.2	+0.2	+0.8	+0.3	+0.9	+0.7	+0.8	+0.4	+0.4	+0.4
4	+0.3	+0.2	+0.4	+0.2	+0.3	+0.2	0.0	+0.2	+0.7	+0.4	+0.3	+0.6	+0.3	+0.3	+0.2	+0.3
5	+0.5	+0.4	+0.6	+0.4	+0.4	+0.7	-0.3	+0.6	+1.1	+0.8	+1.1	+1.0	+0.9	+0.5	+0.4	+0.6

Table 3h - 5 cm soil temperature at 0900 in relation to wind direction and strength, deviation in 0°C from standard site

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.4	+0.8	+1.1	+0.7	+0.3	+0.4	-	+0.4	+1.2	+1.9	-	+1.6	-	+1.3	-	+1.3
2	0.0	+0.2	+0.8	+0.2	+0.6	+1.3	-	+1.2	+0.8	+1.1	-	+0.9	-	+0.6	-	+0.6
3	-0.4	+0.1	+0.3	-0.1	0.0	+0.1	-	+0.1	+0.7	+1.2	-	+0.9	-	+0.6	-	+0.6
4	-0.6	-0.2	+0.1	-0.3	0.0	-0.1	-	-0.1	+0.6	+0.7	-	+0.6	-	+0.6	-	+0.6
5	-0.1	+0.2	+0.4	+0.1	+0.4	+0.8	-	+0.7	+1.4	+1.5	-	+1.5	-	+0.6	-	+0.6

SEASON: SUMMER

Site 1	+1.6	+1.1	-	+1.5	+1.6	+1.6	-	+1.6	+1.7	-	-	+1.7	+1.1	+1.2	-	+1.2
2	+0.4	+0.6	-	+0.4	+1.3	+1.8	-	+1.6	+1.1	-	-	+1.1	+0.3	+0.1	-	+0.2
3	+0.3	-0.3	-	-0.3	-0.3	+0.6	-	+0.2	+0.7	-	-	+0.7	-0.8	-0.1	-	-0.3
4	+0.4	-0.3	-	-0.4	-0.1	+0.3	-	+0.1	-0.1	-	-	-0.1	-0.2	+0.2	-	+0.1
5	+0.1	-0.1	-	0.0	+0.3	+1.2	-	+0.8	+1.3	-	-	+1.3	+0.3	0.0	-	+0.1

SEASON: AUTUMN

Site 1	+0.7	+0.6	-	+0.6	-	+0.4	-	+0.4	+0.1	+0.1	-	+0.1	+0.5	+1.0	-	+0.9
2	+0.6	+0.6	-	+0.6	-	+0.6	-	+0.6	+0.5	+0.3	-	+0.4	+0.5	+0.7	-	+0.7
3	+0.5	+0.3	-	+0.4	-	+0.2	-	+0.2	+0.5	+0.3	-	+0.4	+0.4	+0.4	-	+0.4
4	+0.4	+0.2	-	+0.3	-	+0.1	-	+0.1	+0.4	+0.3	-	+0.3	+0.3	+0.4	-	+0.4
5	+0.6	+0.4	-	+0.5	-	+0.5	-	+0.5	+0.7	+0.6	-	+0.7	+0.4	+0.7	-	+0.6

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.1	-0.1	-	-0.1	-	-0.4	-0.1	-0.3	-0.6	-0.1	-0.1	-0.3	-0.6	-0.3	+0.3	-0.2
2	+0.1	+0.1	-	+0.1	-	-0.4	-0.2	-0.3	-0.4	+0.2	+0.2	-0.1	+0.1	-0.1	-0.1	-0.1
3	+0.2	+0.1	-	+0.1	-	-0.2	-0.1	-0.2	-0.3	+0.2	+0.2	0.0	+0.3	-0.1	-0.1	0.0
4	+0.1	+0.1	-	+0.1	-	-0.3	-0.1	-0.2	-0.4	+0.4	+0.2	+0.1	-0.2	-0.3	+0.1	-0.2
5	+0.1	+0.1	-	+0.1	-	-0.2	-0.1	-0.2	0.0	+0.7	+0.9	+0.4	+0.4	+0.1	+0.2	+0.2

YEAR

Site 1	+0.9	+0.4	+1.1	+0.7	+1.4	+0.9	-0.1	+1.0	+0.5	+0.8	-0.1	+0.6	+0.1	+0.7	+0.3	+0.6
2	+0.3	+0.3	+0.8	+0.3	+1.2	+1.3	-0.2	+1.2	+0.4	+0.6	+0.2	+0.5	+0.2	+0.4	-0.1	+0.3
3	-0.1	+0.1	+0.3	+0.1	-0.2	+0.3	-0.1	+0.1	+0.4	+0.6	+0.2	+0.4	+0.1	+0.3	-0.1	+0.2
4	-0.2	0.0	+0.1	-0.1	-0.1	+0.1	-0.1	+0.1	+0.2	+0.4	+0.2	+0.3	-0.1	+0.2	+0.1	+0.2
5	+0.1	+0.2	+0.4	+0.2	+0.3	+0.8	-0.1	+0.6	+0.9	+1.0	+0.9	+0.9	+0.4	+0.4	+0.2	+0.4

Table 3i - 10 cm soil temperature at 0900 in relation to wind direction and strength, deviation in 0ºC from standard site

SEASON: SPRING

Wind direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.4	+0.6	+0.8	+0.6	+0.3	+0.4	-	+0.4	+0.8	+1.2	-	+0.9	-	+0.8	-	+0.8
2	+0.4	+0.3	+0.7	+0.3	+0.4	+0.9	-	+0.8	+0.7	+0.4	-	+0.6	-	+0.4	-	+0.4
3	-0.1	+0.1	+0.4	+0.1	+0.3	+0.1	-	+0.2	+0.6	+0.3	-	+0.4	-	+0.3	-	+0.3
4	-0.2	0.0	+0.2	-0.1	+0.3	-0.1	-	-0.1	+0.6	+0.2	-	+0.4	-	+0.4	-	+0.4
5	+0.1	+0.2	+0.4	+0.2	+0.3	+0.6	-	+0.5	+1.2	+0.8	-	+1.0	-	+0.4	-	+0.4

SEASON: SUMMER

Site 1	+1.3	+0.8	-	+1.2	+1.2	+1.5	-	+1.4	+2.1	-	-	+2.1	+1.3	+0.7	-	+0.9
2	+0.5	+0.5	-	+0.5	+0.8	+1.7	-	+1.3	+1.4	-	-	+1.4	+0.6	+0.2	-	+0.3
3	-0.1	+0.1	-	-0.1	-0.1	+0.4	-	+0.2	+0.2	-	-	+0.2	-0.1	+0.1	-	0.0
4	-0.1	-0.1	-	-0.1	-0.2	+0.3	-	+0.1	+0.1	-	-	+0.1	0.0	+0.3	-	+0.2
5	+0.2	+0.2	-	+0.2	+0.2	+1.1	-	+0.7	+1.4	-	-	+1.4	+0.7	+0.2	-	+0.3

SEASON: AUTUMN

Site 1	+0.2	+0.4	-	+0.3	-	+0.2	-	+0.2	+0.1	-0.2	-	0.0	+0.4	+0.6	-	+0.6
2	+0.6	+0.3	-	+0.4	-	+0.2	-	+0.2	+0.6	+0.3	-	+0.5	+0.4	+0.5	-	+0.5
3	+0.4	+0.1	-	+0.2	-	+0.2	-	+0.2	+0.7	+0.3	-	+0.6	+0.4	+0.4	-	+0.4
4	+0.3	+0.2	-	+0.2	-	+0.1	-	+0.1	+0.6	+0.2	-	+0.4	+0.4	+0.3	-	+0.3
5	+0.6	+0.3	-	+0.3	-	+0.4	-	+0.4	+0.8	+0.7	-	+0.8	+0.5	+0.6	-	+0.6

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.2	-0.1	-	-0.1	-	-0.4	-0.1	-0.3	-0.7	-0.3	-0.2	-0.4	-0.8	-0.5	-0.3	-0.5
2	+0.2	+0.1	-	+0.1	-	-0.3	-0.2	-0.3	-0.4	-0.1	+0.2	-0.1	-0.1	-0.2	-0.2	-0.1
3	+0.2	+0.1	-	+0.1	-	-0.1	-0.1	-0.1	-0.1	+0.3	+0.5	+0.2	+0.3	0.0	0.0	+0.1
4	0.0	+0.1	-	+0.1	-	-0.1	-0.1	-0.1	-0.1	+0.4	-1.5	-0.2	-0.1	-0.1	+0.1	-0.1
5	0.0	+0.1	-	+0.1	-	-0.2	-0.1	-0.2	+0.2	+1.1	+0.8	+0.6	+0.3	+0.1	+0.3	+0.2

YEAR

	S-SW				W-NW				N-NE				E-SE			
	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.7	+0.3	+0.8	+0.5	+1.1	+0.8	-0.1	+0.8	+0.4	+0.4	-0.2	+0.4	+0.1	+0.4	-0.3	+0.3
2	+0.4	+0.3	+0.7	+0.3	+0.7	+1.1	-0.2	+0.9	+0.5	+0.3	+0.2	+0.4	+0.3	+0.3	-0.2	+0.2
3	+0.1	+0.1	+0.4	+0.1	0.0	+0.2	-0.1	+0.2	+0.4	+0.3	+0.5	+0.4	+0.2	+0.2	0.0	+0.2
4	0.0	+0.1	+0.2	+0.1	-0.2	+0.1	-0.1	+0.1	+0.3	+0.3	-1.5	+0.2	+0.1	+0.2	+0.1	+0.2
5	+0.2	+0.2	+0.4	+0.2	+0.2	+0.7	-0.1	+0.6	+0.8	+0.7	+0.8	+0.8	+0.4	+0.3	+0.3	+0.4

Table 3j - 20 cm soil temperature at 0900 in relation to wind direction and strength, deviation in 0°C from standard site

SEASON: SPRING

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.6	+0.7	+0.6	+0.6	+0.6	+0.6	-	+0.6	+0.7	+0.9	-	+0.8	-	+0.7	-	+0.7
2	+0.3	+0.4	+0.8	+0.4	+0.3	+0.9	-	+0.7	+0.9	+0.3	-	+0.7	-	+0.4	-	+0.4
3	-0.1	+0.1	+0.2	+0.1	+0.3	+0.1	-	+0.1	+0.5	+0.1	-	+0.3	-	+0.2	-	+0.2
4	+0.1	+0.1	+0.2	+0.1	+0.6	+0.1	-	+0.2	+0.8	+0.1	-	+0.5	-	+0.5	-	+0.5
5	+0.2	+0.2	+0.4	+0.2	+0.4	+0.7	-	+0.6	+1.1	+0.6	-	+0.9	-	+0.3	-	+0.3

SEASON: SUMMER

Site 1	+1.2	+1.1	-	+1.2	+0.8	+1.6	-	+1.2	+1.7	-	-	+1.7	+1.3	+1.0	-	+1.1
2	+0.5	+0.6	-	+0.6	+0.6	+1.5	-	+1.1	+0.8	-	-	+0.8	+0.7	+0.4	-	+0.5
3	-0.1	-0.1	-	-0.1	-0.2	+0.2	-	+0.1	+0.1	-	-	+0.1	-0.1	+0.2	-	+0.1
4	0.0	+0.2	-	+0.1	-0.2	+0.3	-	+0.1	+0.1	-	-	+0.1	+0.1	+0.9	-	+0.7
5	+0.3	+0.5	-	+0.3	+0.2	+1.0	-	+0.6	+1.3	-	-	+1.3	+0.8	+0.5	-	+0.6

SEASON: AUTUMN

Site 1	+0.2	+0.3	-	+0.3	-	+0.3	-	+0.3	+0.2	-0.1	-	+0.1	+0.3	+0.4	-	+0.4
2	+0.6	+0.3	-	+0.4	-	+0.6	-	+0.6	+0.6	+0.6	-	+0.6	+0.6	+0.6	-	+0.6
3	+0.4	+0.2	-	+0.3	-	+0.3	-	+0.3	+0.5	+0.4	-	+0.4	+0.5	+0.3	-	+0.3
4	+0.5	+0.2	-	+0.3	-	+0.3	-	+0.3	+0.6	+0.5	-	+0.6	+0.6	+0.4	-	+0.5
5	+0.7	+0.3	-	+0.4	-	+0.4	-	+0.4	+0.7	+0.8	-	+0.8	+0.6	+0.6	-	+0.6

continued overleaf

SEASON: WINTER

Wind Direction:	S-SW				W-NW				N-NE				E-SE			
Strength:	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	-0.1	-0.1	-	-0.1	-	-0.4	-0.1	-0.3	-0.3	-0.1	-	-0.2	-0.4	-0.1	-0.1	-0.2
2	+0.3	+0.2	-	+0.2	-	+0.1	-0.1	+0.1	+0.2	+0.6	+0.4	+0.3	+0.3	-0.1	+0.4	+0.2
3	+0.3	+0.2	-	+0.2	-	-0.1	-0.1	-0.1	+0.4	+0.6	+0.1	+0.4	+0.4	+0.2	+0.3	+0.2
4	+0.1	+0.2	-	+0.2	-	0.0	0.0	0.0	+0.4	+1.1	+0.7	+0.7	+0.4	+0.3	+0.6	+0.3
5	+0.1	+0.1	-	+0.1	-	-0.1	-0.2	-0.2	+0.4	+1.3	+0.9	+0.7	+0.5	+0.3	+0.5	+0.3

YEAR

	S-SW				W-NW				N-NE				E-SE			
	L	M	S	Total	L	M	S	Total	L	M	S	Total	L	M	S	Total
Site 1	+0.7	+0.3	+0.6	+0.5	+0.8	+0.9	-0.1	+0.8	+0.4	+0.4	-	+0.4	+0.2	+0.4	-0.1	+0.3
2	+0.5	+0.3	+0.8	+0.4	+0.5	+1.1	-0.1	+0.8	+0.7	+0.4	+0.4	+0.6	+0.5	+0.4	+0.4	+0.4
3	+0.1	+0.1	+0.2	+0.1	-0.1	+0.2	-0.1	+0.1	+0.4	+0.3	+0.1	+0.3	+0.3	+0.2	+0.3	+0.2
4	+0.2	+0.2	+0.2	+0.2	-0.1	+0.2	0.0	+0.1	+0.6	+0.4	+0.7	+0.6	+0.3	+0.4	+0.6	+0.4
5	+0.3	+0.2	+0.4	+0.3	+0.3	+0.7	-0.2	+0.5	+0.9	+0.8	+0.9	+0.8	+0.6	+0.4	+0.5	+0.4

Table 4 - Average frequencies of stated wind direction at Rosewarne, 1961-3

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
S-SW	1.0	7.3	8.3	9.3	7.7	7.7	4.3	9.7	9.3	9.3	9.0	6.7
W-NW	2.7	3.7	4.3	7.0	7.7	11.3	12.0	12.7	7.0	5.3	5.3	3.3
N-NE	6.7	4.0	7.0	3.7	5.0	2.0	3.3	1.7	4.3	2.7	7.3	4.7
E-SE	7.7	5.7	7.0	6.0	4.0	4.3	5.0	2.7	5.7	7.0	5.3	10.3

Table 5a - Summary table, Spring

	48			85	
	61			42	
+12		+7	+18		+15
-4	+24	+5	-10	+28	+10
-4	+8	+6	-8	+11	+9
	-9			39	
	96			68	
+2		+1	+4		+6
-4	+4	+2	-3	+10	+4
-3	+4	+2	0	+5	+3

Index values

5	9
0	4

8	4
0	3

4	2
0	3

2	3
0	6

4	4
3	4

	54			25	
	55			74	
+19		+12	+8		+9
-3	+32	+8	-3	+14	+6
-9	+8	+7	-4	+3	+7
	-18			25	
	95			67	
+5		+2	+3		+6
-1	+5	+3	-1	+6	+4
-6	+3	+4	-1	+2	+4

	33			29	
	80			84	
+8		+1	+4		+9
-1	+12	+2	-3	+17	+4
-4	+6	+1	-2	+6	+3
	-22			33	
	124			78	
+3		-1	+4		+6
-2	+3	+1	-1	+11	+3
-3	+3	+1	-1	+3	+2

	27			34	
	81			74	
+1		-1	+5		+6
-4	+13	-1	-7	+21	+4
-8	+3	+2	-8	+6	+5
	-26			60	
	111			57	
+1		-3	+8		+6
-4	+1	-1	-4	+22	+4
-7	+2	+1	-3	+5	+5

	50			38	
	77			70	
+11		+4	+5		+16
-5	+13	+4	-7	+17	+9
-2	+4	+6	-3	+6	+8
	35			41	
	91			73	
+3		+7	+5		+13
-6	+11	+6	-4	+13	+8
-1	+4	+6	0	+5	+7

Table 5b - Summary table, Summer

Index values

		8	11		
		0	3		
9	7	4	3	3	2
0	1	0	1	0	6
		7	8		
		6	5		

	57			77	
	61			48	
+17		+ 8	+35		+13
- 3	+26	+ 7	-14	+31	+14
- 3	+ 7	+ 6	-16	+12	+13
	-22			30	
	99			82	
+ 1		0	+ 6		+ 1
- 2	0	+ 2	- 5	+12	+ 3
- 1	+ 5	+ 3	- 2	+ 9	+ 6

	57			32	
	62			71	
+22		+16	+19		+11
- 1	+27	+13	- 4	+17	+14
- 6	+ 8	+11	-17	+ 9	+ 8
	-30			22	
	96			95	
+ 3		+ 4	+ 2		+ 2
- 1	- 3	+ 5	+ 1	- 5	+ 3
- 2	+ 3	+ 6	- 6	+ 4	+ 5

	41			22	
	79			84	
+ 6		+ 2	+ 6		+ 7
0	+16	+ 2	- 6	+17	+ 2
- 4	+ 1	+ 1	-18	- 1	+ 1
	-33			23	
	126			94	
- 2		- 3	+ 5		- 3
+ 1	- 5	- 1	+ 1	+ 3	0
- 2	+ 5	- 1	- 4	+ 7	+ 1

	33			21	
	82			79	
+ 2		+ 1	+ 2		- 1
- 3	+16	+ 1	- 9	+16	+ 1
- 5	+ 3	+ 1	-13	+ 5	+ 1
	-36			56	
	111			71	
- 2		- 4	+19		+ 1
- 2	- 3	- 1	- 6	+25	+ 2
- 2	+ 3	+ 1	- 3	+ 8	+ 7

	54			46	
	71			69	
+ 8		+16	+ 9		+17
- 3	+24	+14	-10	+ 6	+21
- 3	+14	+12	-13	+14	+17
	57			45	
	86			87	
+ 3		+15	+ 8		+12
- 4	+18	+12	- 5	+17	+ 9
- 1	+13	+12	- 6	+ 9	+11

Table 5c - Summary table, Autumn

	66			83	
	47			47	
+11		+ 5	+ 2		+ 7
- 3	+21	+ 4	- 5	+ 8	+ 8
- 4	+ 7	+ 4	- 3	+ 9	+ 8
	-19			52	
	93			68	
+ 1		+ 5	+ 3		+ 6
- 3	+ 2	+ 3	- 4	+ 8	+ 6
- 3	+ 7	+ 4	- 4	+ 7	+ 6

Index values

	7 | 7 0 | 6	
6 | 2 1 | 3	4 | 4 0 | 3	3 | 5 0 | 6
	5 | 3 4 | 5	

	59			23	
	52			82	
+14		+ 6	+ 1		+ 4
- 3	+28	+ 2	- 3	+ 6	+ 5
- 5	+ 4	+ 6	- 1	+ 8	+ 6
	-24			41	
	87			81	
+ 3		+ 6	0		+ 7
- 2	+ 5	+ 4	- 1	+11	+ 5
- 6	+ 2	+ 4	- 1	+ 3	+ 6

	40			33	
	76			83	
+ 7		+ 2	+ 2		+ 4
- 1	+14	+ 2	- 1	+ 7	+ 6
- 1	+ 6	+ 3	- 1	+ 9	+ 4
	-31			45	
	118			76	
+ 1		+ 4	+ 3		+ 4
- 1	+ 3	+ 2	- 1	+ 8	+ 4
- 6	+ 7	+ 3	0	+ 7	+ 3

	35			60	
	80			54	
+ 3		+ 1	+ 1		+ 3
- 3	+17	+ 1	- 4	+ 6	+ 4
- 2	+ 2	+ 3	- 4	+ 6	+ 6
	-30			74	
	116			53	
- 1		+ 3	+ 9		+ 4
- 2	+ 2	+ 2	- 5	+19	+ 3
- 6	+ 4	+ 3	- 6	+ 2	+ 5

	55			50	
	61			70	
+ 5		+ 4	+ 1		+ 1
- 4	+14	+ 2	- 5	+ 1	0
- 1	+ 3	+ 3	- 3	+ 1	+ 1
	55			53	
	71			74	
+ 2		+ 6	+ 4		+ 9
- 4	+ 7	+ 3	- 5	+11	+ 6
- 7	+ 4	+ 3	- 3	+ 4	+ 4

Table 5d - Summary table, Winter

	65			78	
	-			-	
+1		-2	+7		+4
-1	+2	-2	-5	+17	+6
+1	-2	-2	-4	+9	+7
	-1			36	
	85			65	
+1		+1	+3		+2
-3	-2	+1	-3	+4	+2
-2	+2	+1	+1	+3	+3

Index values

	3 | 5 1 | 4	
3 | 1 1 | 2	2 | 1 0 | 2	3 | 3 0 | 6
	3 | 2 3 | 3	

	59			19	
	-			-	
0		-3	+3		-1
-2	+6	-3	-1	+8	-1
-5	-3	+1	-2	+1	+3
	-2			25	
	80			87	
+2		+1	+2		-1
-2	-1	+1	-1	+4	-1
-3	-3	+2	+3	0	+2

	43			27	
	-			-	
+1		-2	+4		0
-1	+2	-1	0	+13	+2
+1	-1	-1	0	+8	+4
	-10			30	
	107			77	
+2		+1	+4		0
-2	-1	+1	-1	+4	+1
-1	+1	+2	+2	+3	+2

	55			57	
	-			-	
+1		-2	+5		+1
-2	+2	-1	-4	+9	-2
-3	+2	0	-7	+5	+7
	-17			67	
	103			49	
+1		+1	+3		-2
-4	-3	+1	-4	+8	-1
-4	+2	+2	-6	+1	+3

	51			41	
	-			-	
+1		-3	+2		-3
-3	-1	-3	-4	+1	-4
-1	-3	-3	-3	0	-2
	42			50	
	81			70	
+2		-1	+2		-2
-5	-3	-1	-5	+3	-5
-4	-1	-1	-2	-3	-2

Table 5e - Summary table, Year

Index values

7	8
0	4

8	2
1	2

4	2
0	3

3	4
0	6

6	3
3	3

	57			81	
	59			44	
+13		+6	+12		+9
-3	+22	+6	-7	+21	+8
-3	+6	+5	-6	+10	+8
	-11			40	
	94			69	
+1		+2	+4		+4
-3	+1	+2	-3	+8	+4
-2	+4	+3	-1	+6	+4

	57			23	
	59			76	
+18		+12	+5		+5
-2	+26	+9	-3	+11	+4
-6	+6	+8	-3	+4	+6
	-18			28	
	79			80	
+3		+3	+2		+3
-2	+2	+3	-1	+6	+2
-4	+1	+4	+1	+2	+4

	39			29	
	79			84	
+6		+1	+4		+4
-1	+13	+2	-2	+14	+4
-3	+2	+1	-2	+7	+3
	-24			33	
	120			80	
+1		+1	+4		+2
-1	0	+1	-1	+7	+2
-3	+4	+1	+1	+4	+2

	35			46	
	82			68	
+2		+1	+4		+3
-3	+13	+1	-7	+13	+2
-5	+2	+1	-8	+6	+6
	-27			65	
	111			55	
0		-1	+8		+2
-3	-1	+1	-4	+16	+2
-4	+2	+2	-5	+3	+4

	53			42	
	71			71	
+7		+10	+3		+6
-4	+17	+8	-6	+8	+4
-2	+8	+8	-4	+3	+4
	47			47	
	82			74	
+3		+7	+4		+6
-4	+7	+5	-5	+9	+3
-3	+4	+5	-2	+2	+3

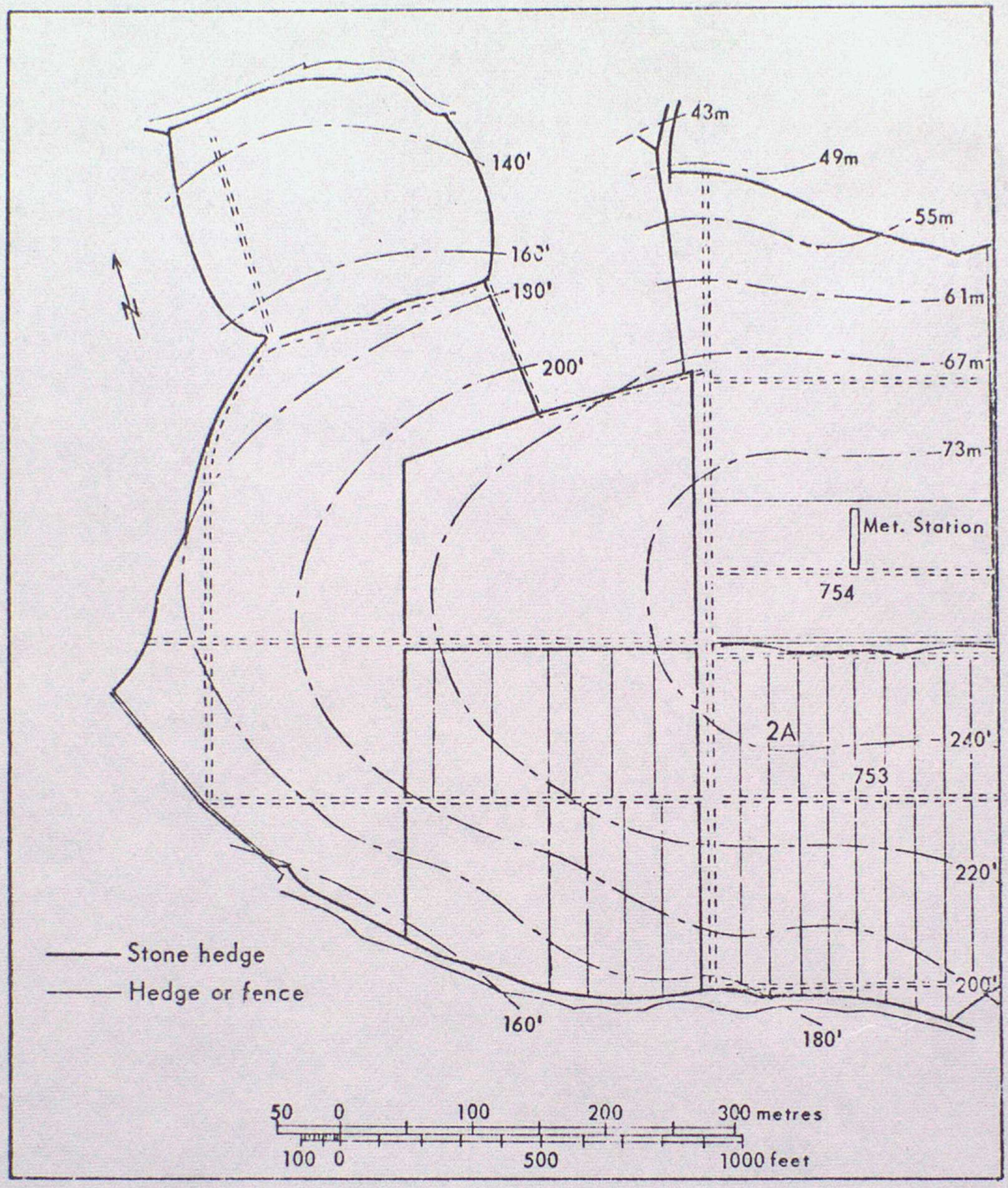
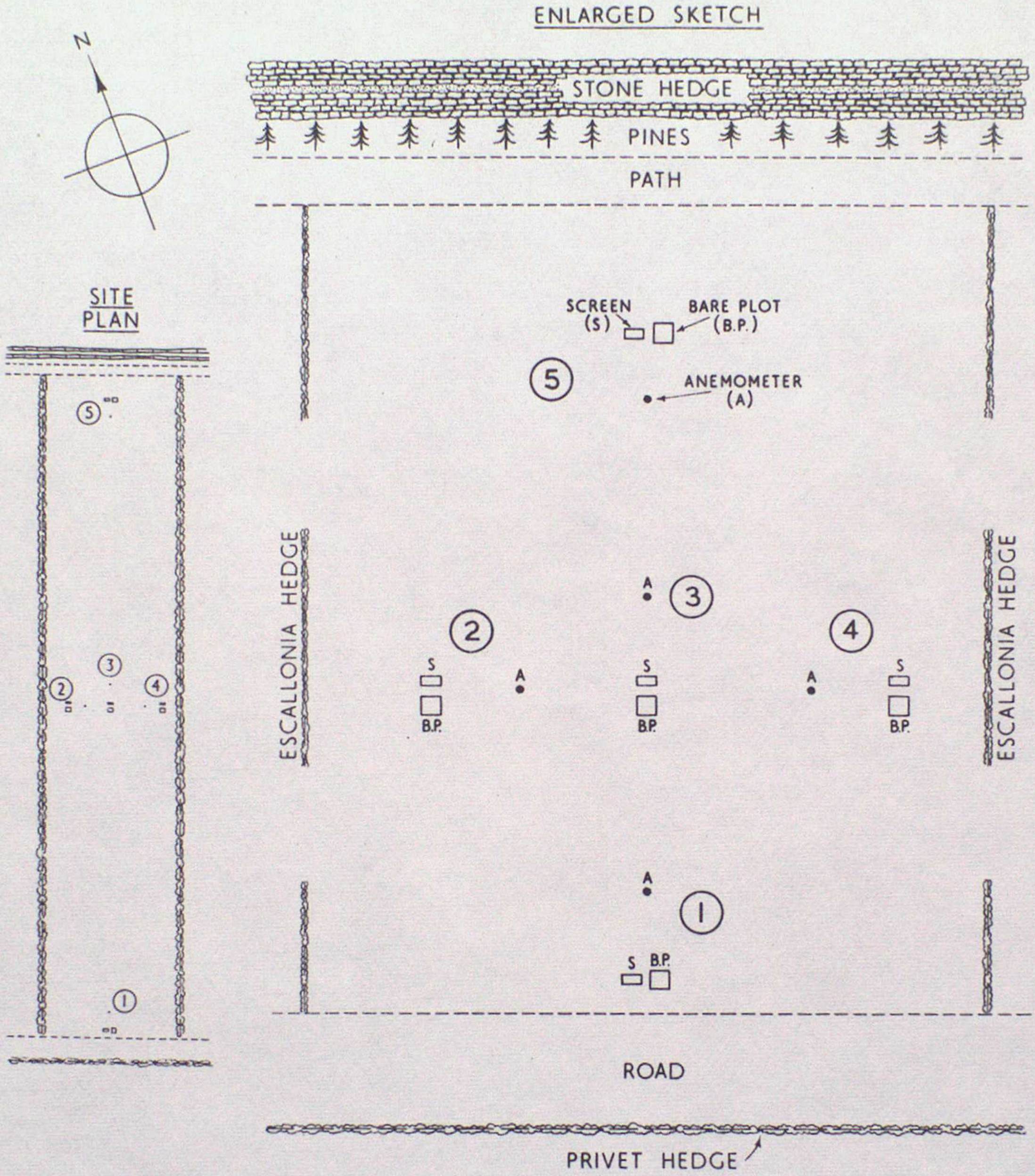

N
43m
49m
55m
61m
67m
73m
140'
160'
180'
200'
Met. Station
754
2A
240'
753
220'
200'
Stone hedge
Hedge or fence
160'
180'
50 0 100 200 300 metres
100 0 500 1000 feet

Figure 1. Simplified map of Rosewarne EHS



ENLARGED SKETCH
N
STONE HEDGE
PINES
PATH
SITE PLAN
SCREEN (S)
BARE PLOT (B.P.)
5
ANEMOMETER (A)
ESCALLONIA HEDGE
A
3
2
4
S
B.P.
A
A
S
B.P.
S
B.P.
ESCALLONIA HEDGE
A
1
S
B.P.
ROAD
PRIVET HEDGE

Figure 2. Sketch of sites at Rosewarne EHS

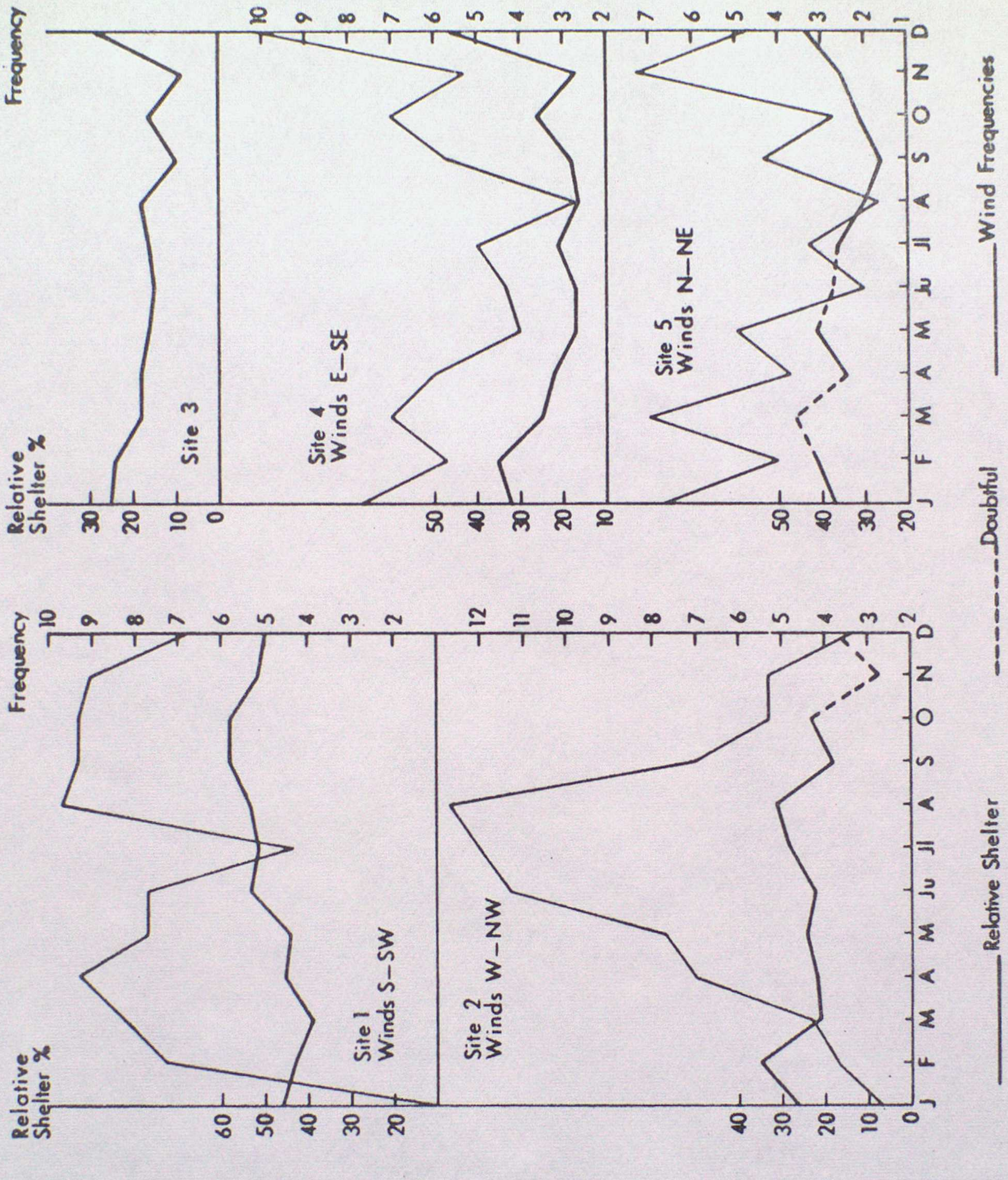


Figure 3. Monthly means of relative shelter and wind frequencies for selected directions at individual sites

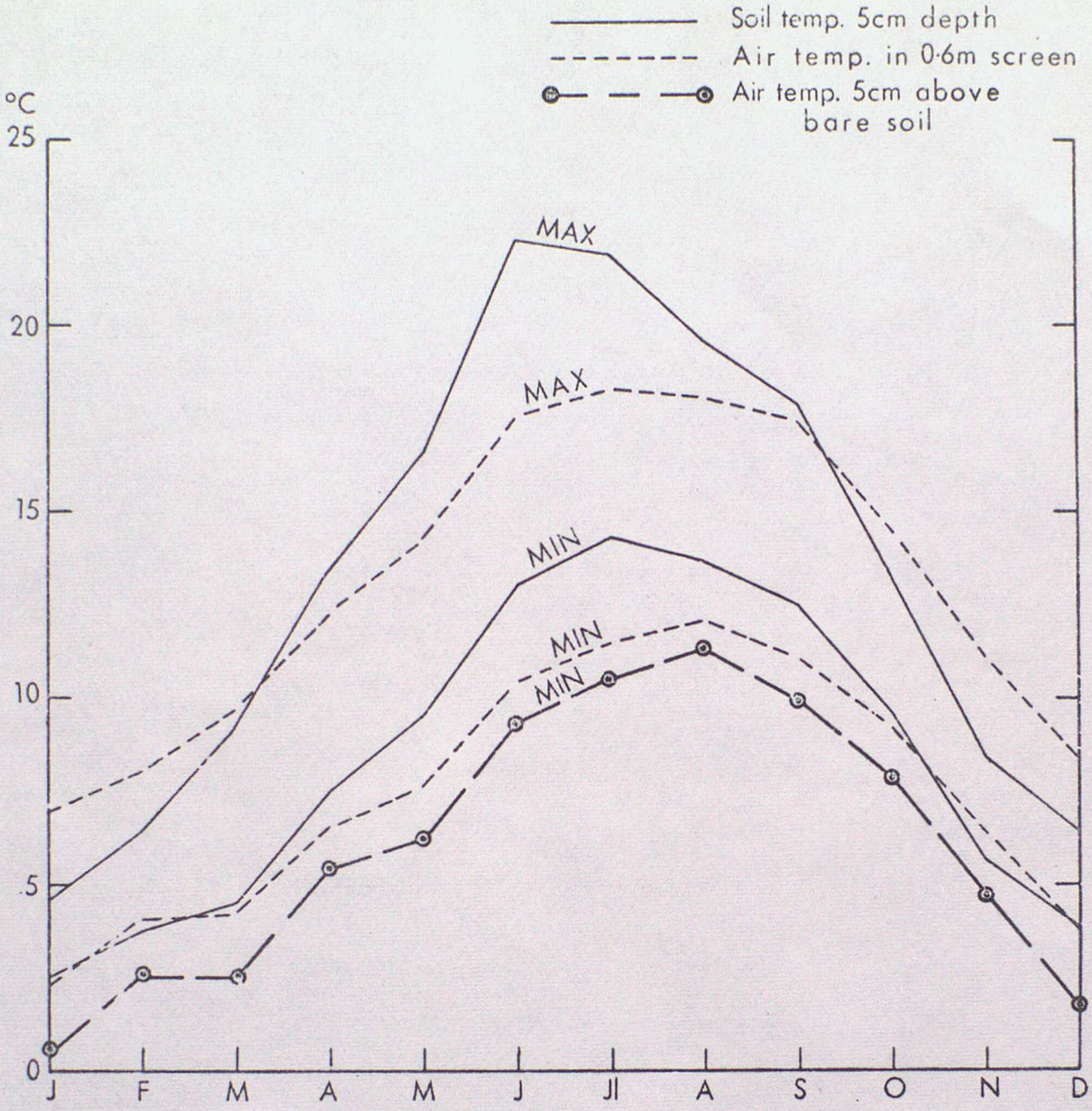


Figure 4. Monthly means of daily temperature at site 6